APPENDIX B

Available Boring Logs and
Well Construction Diagrams

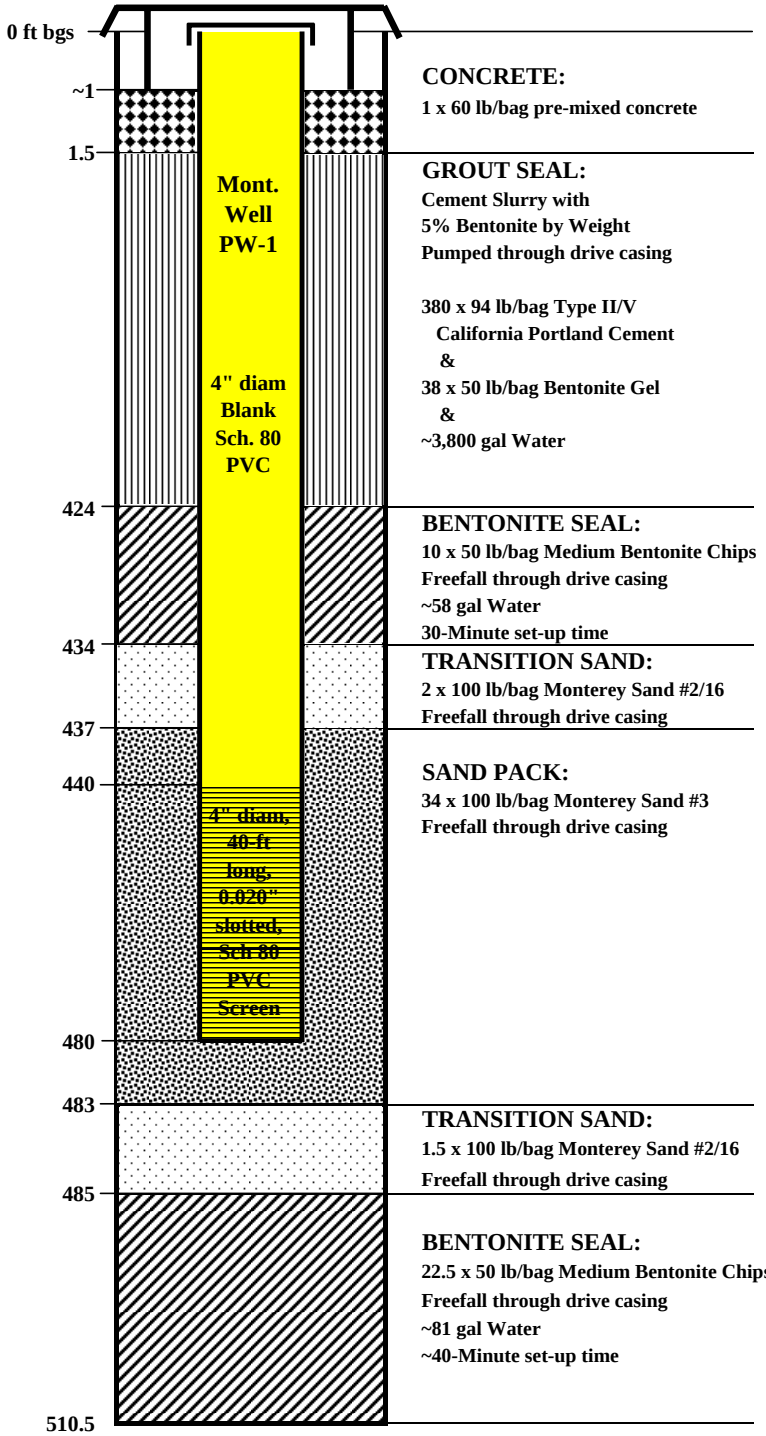
GeoSyntec Consultants
200 East Del Mar Boulevard, Suite 250
Pasadena, California 91105
Phone: (626) 449-0664

WELL CONSTRUCTION LOG

Boring ID: **PW-1**
Start Drill Date: 21 May 2004
Finish Drill Date: 28 May 2004
Location: West Casa Grande Drive
Project: 160-Acre Parcel, Rialto, CA
Number: HA0816
Logger: PL
Reviewer: KA

Elevation Top of Casing: 1704.48 ft MSL
Vert Datum: NGVD-29; HVC-11 (Elev=1622.84)
Northing: 1880289.14
Easting: 6737216.65
Horiz Datum: NAD-83 Zone 5

BELOW GROUND SURFACE COMPLETION:
Well Box: Flush-Mounted, Traffic-Rated Steel
Protective Cover: Locking Well Cap



CONCRETE:
1 x 60 lb/bag pre-mixed concrete

GROUT SEAL:
Cement Slurry with
5% Bentonite by Weight
Pumped through drive casing

380 x 94 lb/bag Type II/V California Portland Cement
&
38 x 50 lb/bag Bentonite Gel
&
~3,800 gal Water

BENTONITE SEAL:
10 x 50 lb/bag Medium Bentonite Chips
Freefall through drive casing
~58 gal Water
30-Minute set-up time

TRANSITION SAND:
2 x 100 lb/bag Monterey Sand #2/16
Freefall through drive casing

SAND PACK:
34 x 100 lb/bag Monterey Sand #3
Freefall through drive casing

TRANSITION SAND:
1.5 x 100 lb/bag Monterey Sand #2/16
Freefall through drive casing

BENTONITE SEAL:
22.5 x 50 lb/bag Medium Bentonite Chips
Freefall through drive casing
~81 gal Water
~40-Minute set-up time

WELL DIAGRAM NOT TO SCALE

DRILLING SUMMARY:
Total Boring Depth: 510.5 ft bgs
Drilling Method: Air Rotary Casing Hammer
Drilling Fluid: Air / Injected Water (Municipal Hydrant)
Contractor: WDC Exploration & Wells
Drilling Rig: Peterbilt SpeedStar 30K
Telescoping Drive Casing Diameters:
16" to 59 ft bgs
13 3/8" to 199 ft bgs
11 3/4" to 477 ft bgs
Tricone Drill Bit Diameters:
14" to 59 ft bgs
12 1/4" to 199 ft bgs
10 5/8" to 510.5 ft bgs

WELL CONSTRUCTION DETAILS FOR MONITORING WELL PW-1:
Total Well Depth: 480 ft bgs
Well Construction Dates: 3 through 8 June 2004
Well Development Date: 17 June 2004
Blank Well Casing:
Virgin, factory-sealed, flush-threaded, 4"-diameter, Sch 80 PVC (from ground surface to 440 ft bgs)
Well Screen Interval:
Virgin, factory-sealed, flush-threaded, 4"-diameter, 0.020" slotted, Sch 80 PVC (from 440 to 480 ft bgs)
Length of End Cap: 0.41 ft
Centralizers (2 total): PVC with metal screws (directly above and below the screen interval)

TEMPORARY WELLS INSTALLED

Temporary Well ID	*Installation Date*	*Well Depth (ft bgs)*	*Screen Interval (ft bgs)*	*Approx. Static Water Level (ft bgs)*
PW-1A-T01-444	26-May-04	480	434 - 444	430.98
PW-1A-T02-510	28-May-04	510	500 - 510	504.15

DRIVE SOIL SAMPLES COLLECTED

Soil Sample ID	*Sampling Depth (ft bgs)*	*Sample Date*
PW-1A-TO2-486	486	28-May-04

NOTES:
This boring was originally identified as PW-1A. However, the boring ID was revised to PW-1 to be consistent with the naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the Remedial Investigation Work Plan.

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 1 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	ARTIFICIAL FILL Asphalt Surface; 6" thick										07:30	Borehole telescoping diameters and approximate depths: 16-inch diameter steel casing (0' - 59'), 13 3/8" diameter steel casing (59' - 199'), 11 3/4" diameter steel casing (199' - 477'), 10 5/8" open borehole (477' - 510.5'). Air knifing to 8'.
5	SAND with GRAVEL (SP-GW): olive brown [2.5Y 4/4]; 10% fine to coarse gravel; cobbles; 80% poorly graded medium-grained sand; 10% fines; dry; no staining; no unusual odors; (10,80,10)										08:00	
10	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/4]; 80% fine to coarse gravel (subangular to angular, <3" diameter); 20% medium- to coarse-grained sand; trace fines; no staining; no unusual odors; (80,20,tr)									20	13:25	
15										25.8	13:47	
20	@ 20' - decrease in sand to 10%; color change to dark olive brown [2.5Y 3/3]; (90,10,tr)									23.4	14:20	From 0' - 20', rate of drilling is 0.44 ft/min.
25	@ 25' - gravel (angular to subangular, 1" to 4" diameter); sand (angular to subangular)									28.9	14:25	
30												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1880289.14
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6737216.65
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 2 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVEL with SAND (GW): 1" - 4" diameter gravels; (90,10,tr)									69.2	14:30	PID headspace reading, sample placed in baggie, condensation apparent in baggie.
35												From 20' - 40', rate of drilling is approximately 0.4 ft/min.
40										10.2	15:10	
45	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/4]; 90% fine to coarse gravel (angular to subangular, <4" diameter); 10% coarse- to medium-grained sand; trace fines; dry; no staining; no unusual odors; (90,10,tr)									86.6	15:20	PID headspace reading, sample placed in baggie, condensation apparent in baggie.
50										90.7	15:27	PID headspace reading, sample placed in baggie, condensation apparent in baggie.
55	@ 55' - angular to subangular gravels and sands									102	15:32	PID headspace reading, sample placed in baggie, condensation apparent in baggie.
												Bottom of 16" diameter steel casing is at 59'.
60												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1880289.14
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6737216.65
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 3 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL (GW): olive [5Y 4/4]; coarse gravel (angular to subangular, <3" diameter); trace fines; (100,0,tr)										16:15	@ approximately 60' - 65', appear to be grinding through a boulder or large cobbles.
65										12.0	16:22	
70	@ 70' - very wet soil cuttings due to water injection in the borehole									4.8	16:30	From 60' - 80', rate of drilling is approximately 0.6 ft/min.
75										5.2	16:40	
80										3.1	16:45	
85	@ 85' - decrease in gravel size; angular to subangular gravels									11.7	17:00	@ 85', continue to grind through large cobbles or boulders.
90												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 4 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL (GW): increase in gravel size									12.2	17:12	
95										13.5	17:25	From 80' - 95', rate of drilling is approximately 0.38 ft/min.
100	@ 100' - color change to very dark gray [2.5Y 3/1]; very wet soils due to water injection									15.0	07:45	All subsequent PID readings are from the hopper.
105	@ 105' - trace fines; wet due to water injection in borehole									0.9	07:53	Background PID reading is 0.9 ppm.
110	@ 110' - gravel (angular to subangular, <1" diameter)									0.9	08:05	
115	Well-Graded GRAVEL with SAND (GW-SW): very dark grayish brown [2.5Y 3/2]; 70% well-graded gravel (<0.5" diameter); 30% coarse- to medium-grained sand; trace fines; wet due to water injection in borehole (70,30,tr)									1.2	08:10	From 98' -115', rate of drilling is 0.425 ft/min.
120												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5
REVIEWER Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 5 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW-SW): angular to subangular sands and gravels									1.2	08:15	
125										1.2	08:20	
130	maximum size of gravels is 0.5" diameter									1.1	08:24	
135	@ 135' - increase in gravel size (<0.75" diameter); angular to subangular									1.3	08:27	From 115' -135', rate of drilling is approximately 1.18 ft/min.
140	@ 140' - color change to olive brown [2.5Y 4/4]; 70% well-graded gravel (angular to subangular, <0.5" diameter); 20% medium- to coarse-grained sand; 10% fines; moist due to water injection into the borehole; (70,20,10)									0.6	13:30	From 140' - 150', rate of drilling is approximately 0.45 ft/min.
145										0.0	13:45	
150												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5
REVIEWER Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 6 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW-SW): angular to subangular sands and gravels									0.4	13:52	PID headspace reading, sample placed in baggie, condensation apparent in baggie.
155	@ 155' - color change to olive [5Y 4/4]									4.1	14:13	
160	@ 160' - color change to dark olive gray [5Y 3/2]; 80% fine to coarse gravel (<0.75" diameter); 10% coarse-grained sand; 10% fines; no staining; no unusual odor; moist due to water injection into the borehole; (80,10,10)									3.3	14:25	From 150' -160', rate of drilling is approximately 0.22 ft/min.
165	GRAVEL with SILTY SAND (GW-SM): dark olive gray [5Y 3/2]; 60% well-graded fine gravel (<0.25" diameter); 20% medium- to coarse-grained sand; 20% fines; moist due to water injection into the borehole; (60,20,20)									0.9	15:20	
170										0.9	15:30	
175	@ 175' - angular to subangular sands and gravels									0.9	15:37	
180												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 7 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVEL with SILTY SAND (GW-SM): increase in gravel size (<1.25" diameter)									0.8	15:45	From 160' - 180', rate of drilling is 0.33 ft/min.
185										0.6	15:55	
190	@ 190' - damp									0.8	16:07	
195										0.5	16:15	
200										0.4	16:25	Bottom of 13 3/8" diameter steel casing is at 199'.
205	@ 205' - color change to dark olive brown [2.5Y 3/3]									3.4	08:45	PID readings from the air return at hopper.
210												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5
REVIEWER Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 8 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVEL with SILTY SAND (GW-SM): gravel sizes <1.25" diameter									3.5	08:48	Background PID reading is 3.4 ppm.
215										3.6	08:52	
220	@ 220' - 60% well-graded fine gravel (angular and subangular); increase in well-graded medium- to coarse-grained sand to 25%; decrease in fines to 15%; moist due to water injection into the borehole; no staining; no unusual odors; (60,25,15)									5.2	09:05	From 205' - 215', rate of drilling is approximately 1.0 ft/min.
225										2.6	09:15	
230										2.3	09:22	
235	@ 235' - angular to subangular gravels and sands									2.2	09:30	From 220' - 235', rate of drilling is approximately 0.8 ft/min.
240												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5
REVIEWER Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 9 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVEL with SILTY SAND (GW-SM): angular to subangular gravels									2.7	09:50	
245										2.0	09:55	
250	@ 250' - gravel sizes <1.25" diameter									2.1	09:59	
255										2.0	10:05	From 240' - 255', rate of drilling is approximately 1.0 ft/min.
260	@ 260' - decrease in gravel sizes (<0.5" diameter)									2.0	10:18	
265										1.9	10:24	
270												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5
REVIEWER Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 10 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVEL with SILTY SAND (GW-SM): gravel sizes <0.5" diameter									1.7	10:30	
275										1.7	10:35	From 260' - 275', rate of drilling is approximately 1.0 ft/min.
280										1.7	10:48	
285	@ 285' - moist due to water injection into the borehole									1.6	10:53	
290										1.5	10:58	
295	@295' - angular to subangular gravels									1.5	11:02	From 280' - 295', rate of drilling is approximately 1.0 ft/min.
300												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 11 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVEL with SILTY SAND (GW-SM): gravel sizes <0.5" diameter (angular to subangular)									1.5	11:16	
305										1.5	11:20	
310										1.5	11:25	
315	Well-Graded GRAVEL with SAND (GW-SW): dark olive gray [5Y 3/2]; 50% fine gravel (angular and subangular); 40% well-graded medium- to coarse-grained sand; 10% fines; moist due to water injection; no staining; no unusual odors; (50,40,10)									1.6	11:30	
320	@ 320' - gravel sizes <0.5" diameter									1.6	11:39	
325										1.5	11:42	
330												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 12 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW-SW): angular to subangular gravels									1.5	11:48	
335	@ 335' - decrease in gravel sizes (<0.25" diameter)									1.5	11:55	From 320' - 335', rate of drilling is approximately 1.0 ft/min.
340										1.4	12:10	
345										1.4	12:14	
350	@ 350' - moist due to water injection									4.2	12:20	
355										3.6	12:30	From 340' - 355' , rate of drilling is approximately 1.0 ft/min.
360												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 13 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW-SW): increase in well-graded fine gravel to 75% (angular and subangular); decrease in sand to 15%; decrease in fines to 10%; no staining; no unusual odors; (75,15,10)									1.4	14:10	From 360' - 375', rate of drilling is approximately 0.6 ft/min.
365										1.4	14:17	
370	GRAVEL with SILTY SAND (GW-SM): dark olive brown [2.5Y 3/3]; 50% well-graded fine gravel (angular and subangular); 35% well-graded medium- to coarse-grained sand; 15% fines; damp due to water injection; (50,35,15)									1.4	14:25	
375											14:35	
380											14:10	@ 377', very difficult drilling; appear to be encountering a cemented zone (approximately 377' - 390').
385	Well-Graded GRAVEL with SAND (GW-SW): olive brown [2.5Y 4/4]; 80% well-graded gravel (angular and subangular); 15% fine- to coarse-grained sand; 5% fines; damp due to water injection; no staining; no unusual odors; (80,15,5)									1.2	15:23	
390												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 14 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW-SW): angular to subangular gravels									1.3	15:30	
395	@ 395' - decrease in well-graded fine gravel to 50% (angular to subangular, <0.25" diameter); increase in well-graded fine- to coarse-grained sand to 45%; 5% fines; no staining; no unusual odors; (50,45,5)									2.1	15:40	
400										3.0	15:57	
405										2.4	16:05	
410	@ 410' - damp due to water injection into the borehole									3.1	16:15	
415										1.7	16:25	From 400' - 415', rate of drilling is approximately 0.43 ft/min.
420												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 15 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW-SW): gravel sizes <0.25" diameter; (50,45,5)									1.8	16:43	Stopped injecting water into borehole.
425	SANDY SILT with GRAVEL (ML): olive brown [2.5Y 4/4]; 15% very fine to fine gravel; 30% well-graded fine- to coarse-grained sand; 55% fines; moist; no plasticity; (15,30,55)									1.5	16:50	No subsequent PID readings due to moist soils.
430				Temporary well PW-1A-T01-444 screened from 434' - 444'. Static water level measured at 430.98'.							17:00	
435											17:15	From 420' - 435', rate of drilling is approximately 0.33 ft/min.
						PW-1A-T01-444 (Groundwater Sample)						
440	@ 440' - saturated			▽ @ 440', encountered first groundwater NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-1							07:30	From 434' - 444', drilled open hole with 10 5/8" drill bit to install Temporary Well PW-1A-T01-444.
445	SANDY GRAVEL with CLAY (GW-GC): olive brown [2.5Y 4/4]; 60% fine gravel (angular to subangular); 30% medium- to coarse-graded sand; 10% fines (clay lenses); wet; no plasticity; no dilatancy; (60,30,10)										08:05	
450												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5
REVIEWER Walt Grinyer, P.G.

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 16 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY SAND (SC): olive brown [2.5Y 4/3]; trace gravel; 90% well-graded medium to coarse-grained sand (angular to subangular); 10% fines (clay lenses); wet; no plasticity; no dilatancy; (tr,90,10)										08:10	
455	SANDY CLAY (CL): light olive brown [2.5Y 5/4]; 10% medium-grained sand (angular to subangular); 90% clay; wet; low dilatancy; no plasticity; (0,10,90)										08:20	
460	@ 460' - increase in sand to 40% (angular to subangular); 60% clay; wet; (0,40,60)										08:30	
465	CLAYEY GRAVEL (GC): light olive brown [2.5Y 5/4]; 60% angular to subangular fine gravel; 10% medium- to coarse-grained sand; 30% clay; low dilatancy; no plasticity; wet; (60,10,30)										08:55	
470	@ 470' - gravel sizes <0.25" diameter										09:00	Borehole producing lots of water.
475	@ 475' - increase in gravel size (<0.35" diameter)										09:05	
480												@ 477', bottom of 11 3/4" diameter steel casing. From 477' - 510.5', open hole drilling (10 5/8" diameter)

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 17 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY GRAVEL (GC): increase in gravel size (<0.5" diameter); interbedded lenses of clay; wet; (60,10,30)										09:10	
485	CLAYEY GRAVEL with SAND (GC-SW): light olive brown [2.5Y 5/4]; 40% angular to subangular fine gravel; 30% medium to coarse sand; 30% clay; moist to wet; low dilatancy, no plasticity; (40,30,30)					PW-1A-T02-486 (Soil Sample)		18-6" 32/10"	100		10:00	From 486' - 487.5', drive soil sample PW-1A-T02-486 collected using a 325-lb hammer.
	@ 486.5' - SANDY SILT with CLAY (ML): olive brown [2.5Y 4/4]; 30% very fine-grained sand (rounded to subangular); 70% fines; medium plasticity; moist; slow dilatancy; (0,30,70)											
490												
495				Temporary well PW-1A-T02-510 screened from 500' - 510'. Static water level measured at 504'.								@ 495' - 500', no recovery of cuttings for logging. No water observed from cyclone.
500												
505	Well-Graded SAND with SILT (SW-SM): olive brown [2.5Y 4/4]; 90% well-graded fine- to medium-grained sand (angular to subangular); 10% fines; moist; (0,90,10)			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-1		PW-1A-T02-510 (Groundwater Sample)					14:30	
510												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-1 **SHEET** 18 **OF** 18
START DRILL DATE May 21, 04 **ELEVATION DATA:**
FINISH DRILL DATE May 28, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1704.48 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND and SILT (GW-SM): olive brown [2.5Y 4/4]; 50% well-graded gravel (angular and subangular, <0.03" diameter); 40% well-graded medium to coarse sand; 10% fines; dry; (50,40,10)										14:40	
515	Boring terminated at a depth of 510.5'. Permanent well PW-1 was subsequently installed. Refer to well construction log for permanent well PW-1.											
520												
525												
530												
535												
540												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 16", 13 3/8", 11 3/4", 10 5/8"
LOGGER Phuong Ly
REVIEWER Walt Grinyer, P.G.

NORTHING 1880289.14
EASTING 6737216.65
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES: This boring was originally identified as PW-1A. However, the boring ID has been revised to PW-1 to be consistent with naming system for the monitoring wells installed by GeoSyntec Consultants for this project and proposed in the project work plan.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

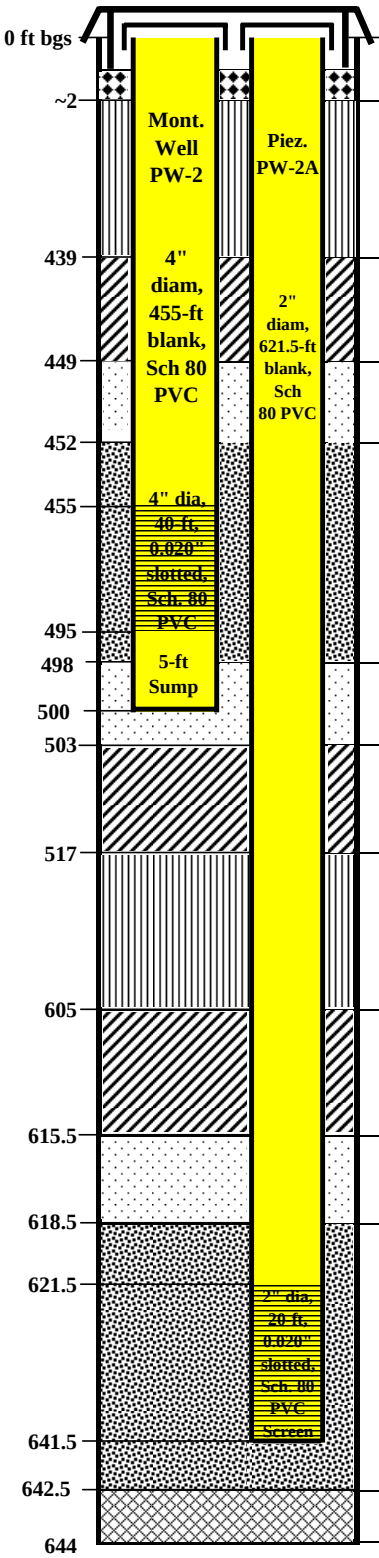
GeoSyntec Consultants
200 East Del Mar Boulevard, Suite 250
Pasadena, California 91105
Phone: (626) 449-0664

WELL CONSTRUCTION LOG

Boring ID: **PW-2**
Start Drill Date: 9 June 2004
Finish Drill Date: 1 July 2004
Location: West Lowell Street
Project: 160-Acre Parcel, Rialto, CA
Number: HA0816
Logger: PL
Reviewer: KA

Elevation Top of Casing: 1639.36 ft MSL
Vert Datum: NGVD-29; HVC-11 (Elev=1622.84)
Northing: 1878329.50
Easting: 6738651.87
Horiz Datum: NAD-83 Zone 5

BELOW GROUND SURFACE COMPLETION:
Well Box: Flush-Mounted, Traffic-Rated Steel
Protective Covers: Locking Well Caps



CONCRETE:
1 x 60 lb/bag pre-mixed concrete

GROUT SEAL:
Cement Slurry with 5% Bent. by Wt.
Pumped through drive casing
285 x 94 lb/bag Type II/V Cement &
28.5 x 50 lb/bag Bentonite Gel &
~2,850 gal Water

BENTONITE SEAL:
10 x 50 lb/bag Med. Bentonite Chips
Freefall through drive casing
~80 gal Water; 25-Minute set-up time

TRANSITION SAND:
2 x 100 lb/bag Monterey Sand #2/12
Freefall through drive casing

SAND PACK:
49 x 100 lb/bag Monterey Sand #3
Freefall through drive casing

TRANSITION SAND:
4 x 100 lb/bag Monterey Sand #2/12
Freefall through drive casing

BENTONITE SEAL:
10 x 50 lb/bag Med. Bentonite Chips
Freefall through drive casing
~80 gal Water; 25-Minute set-up time

GROUT SEAL:
Cement Slurry with 5% Bentonite by Wt.
Pumped through drive casing from surface
30 x 94 lb/bag Type II/V Cement &
3 x 50 lb/bag Bentonite Gel &
~300 gal Water

BENTONITE SEAL:
11 x 50 lb/bag Med. Bentonite Chips
Freefall through drive casing
~23 gal Water; >24 Hour set-up time

TRANSITION SAND:
2 x 100 lb/bag Monterey Sand #2/12
Freefall through drive casing

SAND PACK:
49 x 100 lb/bag Monterey Sand #3
Freefall through drive casing

Borehole caved with native materials

WELL DIAGRAM NOT TO SCALE

DRILLING SUMMARY:

Total Boring Depth: 644 ft bgs
Drilling Method: Air Rotary Casing Hammer
Drilling Fluid: Air / Injected Water (Municipal Hydrant)
Contractor: WDC Exploration & Wells
Drilling Rig: Peterbilt SpeedStar 30K

Telescoping Drive Casing Diameters:	*Tricone Drill Bit Diameters:*
13 3/8" to 199 ft bgs	12 1/4" to 199 ft bgs
11 3/4" to 595 ft bgs	10 5/8" to 597 ft bgs
9 5/8" to 642 ft bgs	8 1/2" to 644 ft bgs

WELL CONSTRUCTION DETAILS:

Well Construction Dates: 1 through 8 July 2004

MONITORING WELL PW-2:
Total Well Depth: 500 ft bgs
Well Development Date: 16 July 2004
Blank Well Casing: Virgin, factory-sealed, flush-threaded, 4"-diameter, Sch 80 PVC (from ground surface to 455 ft bgs)
Well Screen Interval: Virgin, factory-sealed, flush-threaded, 4"-diameter, 0.020" slotted, Sch 80 PVC (from 455 to 495 ft bgs)
Length of End Cap / Sump: 0.41 ft / 4.8 ft
Centralizers (2 total): Metal (directly above & below screen interval)

PIEZOMETER PW-2A:
Total Piezometer Depth: 641.5 ft bgs
Blank Well Casing: Virgin, factory-sealed, flush-threaded, 2"-diameter, Sch 80 PVC (from ground surface to 621.5 ft bgs)
Well Screen Interval: Virgin, factory-sealed, flush-threaded, 2"-diam, 0.020" slotted, Sch 80 PVC (from 621.5 to 641.5 ft bgs)
Length of End Cap: 0.63 ft
Centralizers (3 total): PVC with metal screws (directly above and below the screen interval and at 580 ft bgs)

TEMPORARY WELLS INSTALLED

Temporary Well ID	*Installation Date*	*Well Depth (ft bgs)*	*Screen Interval (ft bgs)*	*Approx. Static Water Level (ft bgs)*
PW-2-T01-468	14-Jun-04	468	458 - 468	462.54
PW-2-T02-496	15-Jun-04	496	491 - 496	462.50
PW-2-T03-520	16-Jun-04	520	515 - 520	498.79
PW-2-T04-587	23-Jun-04	587	577 - 587	572.22
PW-2-T05-640	29-Jun-04	640	635 - 640	621.49

DRIVE SOIL SAMPLES COLLECTED

Soil Sample ID	*Sampling Depth (ft bgs)*	*Sample Date*
PW-2-T03-522.5-GT	522.5	16-Jun-04
PW-2-552-GT	552	17-Jun-04
PW-2-T04-589-GT	589	22-Jun-04
PW-2-TO5-643.5-GT	643.5	12-Jul-04

NOTES:

On 15 July 2004, it was determined using a downhole camera that piezometer PW-2A was damaged during installation. Thus, the piezometer was not developed and a replacement piezometer (PW-2A) was subsequently installed in October 2004.

GeoSyntec Consultants
200 East Del Mar Boulevard, Suite 250
Pasadena, California 91105
Phone: (626) 449-0664

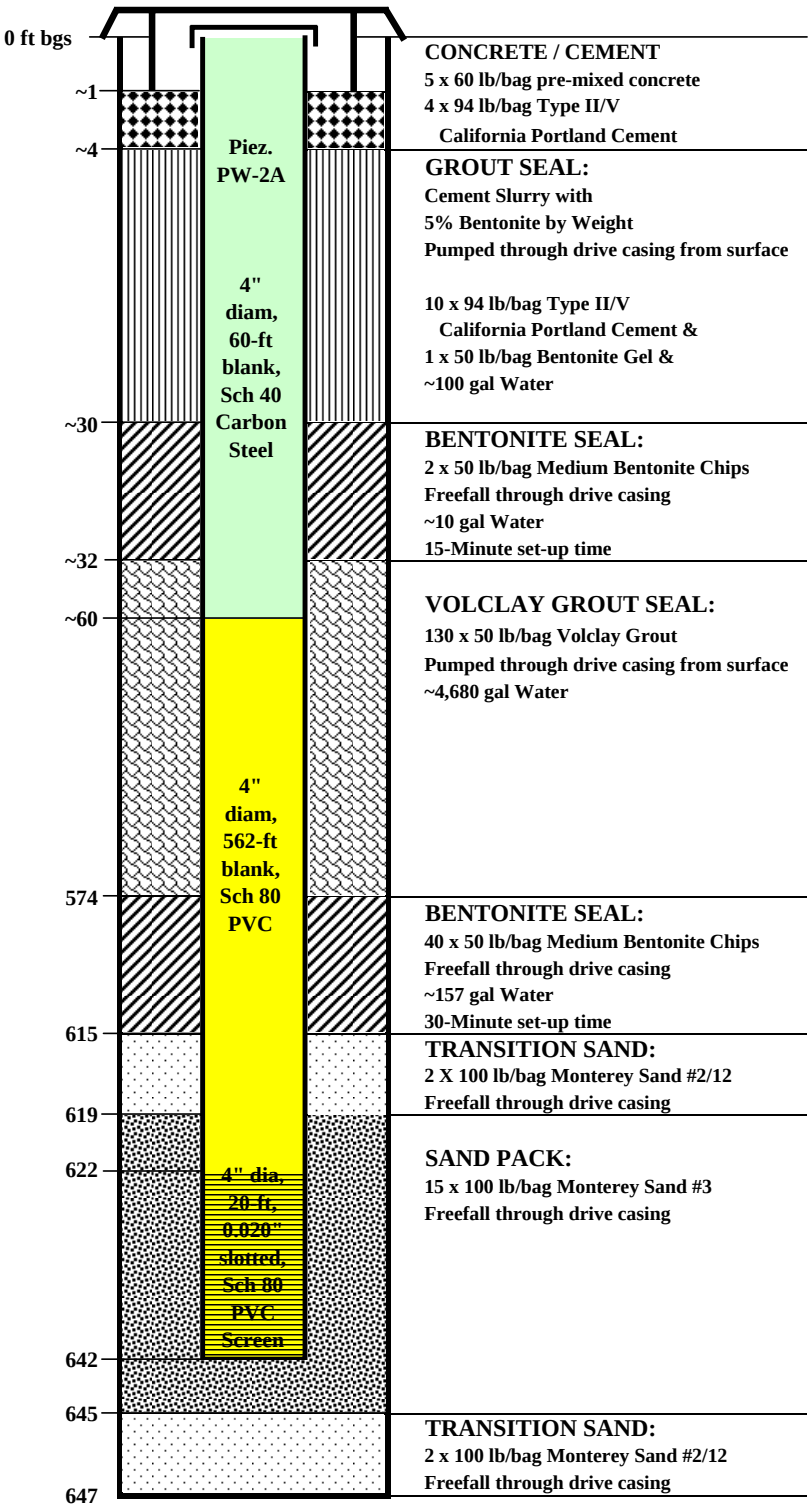
WELL CONSTRUCTION LOG

Boring ID: **PW-2A**

Start Drill Date: 7 October 2004
Finish Drill Date: 13 October 2004
Location: West Lowell Street
Project: 160-Acre Parcel, Rialto, CA
Number: HA0816
Logger: PL
Reviewer: KA

Elevation Top of Casing: 1639.58 ft MSL
Vert Datum: NGVD-29; HVC-11 (Elev=1622.84)
Northing: 1878329.54
Easting: 6738632.77
Horiz Datum: NAD-83 Zone 5

BELOW GROUND SURFACE COMPLETION:
Well Box: Flush-Mounted, Traffic-Rated Steel
Protective Cover: Locking Well Cap



CONCRETE / CEMENT
5 x 60 lb/bag pre-mixed concrete
4 x 94 lb/bag Type II/V
California Portland Cement

GROUT SEAL:
Cement Slurry with
5% Bentonite by Weight
Pumped through drive casing from surface

10 x 94 lb/bag Type II/V
California Portland Cement &
1 x 50 lb/bag Bentonite Gel &
~100 gal Water

BENTONITE SEAL:
2 x 50 lb/bag Medium Bentonite Chips
Freefall through drive casing
~10 gal Water
15-Minute set-up time

VOLCLAY GROUT SEAL:
130 x 50 lb/bag Volclay Grout
Pumped through drive casing from surface
~4,680 gal Water

BENTONITE SEAL:
40 x 50 lb/bag Medium Bentonite Chips
Freefall through drive casing
~157 gal Water
30-Minute set-up time

TRANSITION SAND:
2 X 100 lb/bag Monterey Sand #2/12
Freefall through drive casing

SAND PACK:
15 x 100 lb/bag Monterey Sand #3
Freefall through drive casing

TRANSITION SAND:
2 x 100 lb/bag Monterey Sand #2/12
Freefall through drive casing

WELL DIAGRAM NOT TO SCALE

DRILLING SUMMARY:

Total Boring Depth: 647 ft bgs
Drilling Method: Air Rotary Casing Hammer
Drilling Fluid: Air / Injected Water (Municipal Hydrant)
Contractor: WDC Exploration & Wells
Drilling Rig: Peterbilt SpeedStar 100K

Telescoping Drive Casing Diameters:
11 3/4" to 299 ft bgs
9 5/8" to 643 ft bgs
Tricone Drill Bit Diameters:
10 5/8" to 299 ft bgs
8 1/2" to 647 ft bgs

WELL CONSTRUCTION DETAILS FOR REPLACEMENT PIEZOMETER PW-2A:

Total Piezometer Depth: 642 ft bgs
Well Construction Dates: 13 through 16 October 2004
Well Development Date: 26 October 2004
Blank Well Casing: Virgin, flush-threaded, 4"-diam, Sch 40 carbon steel (from ground surface to 60 ft bgs); Virgin, factory-sealed, flush-threaded, 4"-diameter, Schedule 80 PVC (from 60 to 622 ft bgs)
Well Screen Interval: Virgin, factory-sealed, flush-threaded, 4"-diameter, 0.020" slotted, Sch 80 PVC (from 622 to 642 ft bgs)
Length of End Cap: 0.40 ft
Centralizers (2 total): Metal (directly above and below the screen interval)

NOTES:

On 15 July 2004, it was determined using a downhole camera that the original piezometer PW-2A was damaged during installation. Thus, this boring was drilled approximately 20 ft west of the original piezometer PW-2A location and this replacement piezometer (PW-2A) was subsequently installed.

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 1 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
0	**ARTIFICIAL FILL** Asphalt Surface; 2" thick											Borehole telescoping diameters and approximate depths: 13 3/8" diameter steel casing (0' - 199'), 11 3/4" diameter steel casing (199' - 587'), 9 5/8" diameter steel casing (587' - 642'), 8 1/2" diameter open borehole (642' - 642.5'). Air knifing to 8.2'.
5	Well-Graded GRAVEL (GW): olive brown [2.5Y 4/4]; 60% fine to coarse gravel; 20% cobbles (<8" diameter); 20% well-graded fine- to coarse-grained sand; trace fines; dry; loose; (20,60,20,tr)											
10	@ 10' - becomes damp due to water injection										0830	
15	Well-Graded GRAVEL (GW): dark olive gray [5Y 3/2]; fine to coarse gravel (angular and subangular, <1.5" diameter); cobbles, trace fines; damp due to water injection; (100,0,tr)										0845	
20											0905	From 20' - 35', rate of drilling is approximately 0.75 ft/min.
25											0910	
30												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 2 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/3]; 50% fine to coarse gravel (angular and subangular); 40% well-graded fine- to coarse-grained sand; 10% fines; moist due to water injection; (50,40,10)										0915	
35	@ 35' - increase in gravel to 60% (<1.75" diameter); decrease in well-graded sand to 35%; 5% fines; (60,35,5)										0920	
40											0945	From 40' - 55', rate of drilling is approximately 0.6 ft/min.
	@ 42' - very large cobbles/boulders											Difficult drilling due to very large cobbles/boulders.
45											0958	
50											1005	
55	@ 55' - large cobbles/boulders; damp due to water injection										1015	
60												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 3 OF 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/3]; 60% fine to coarse gravel (angular and subangular); 35% well-graded fine- to coarse-grained sand; 5% fines; moist due to water injection; (60,35,5)										1038	From 60' -75', rate of drilling is approximately 1.25 ft/min.
65											1043	
70											1046	
75	@ 75' - gravel sizes <1.75" diameter										1050	
80											1105	
85	@ 85' - moist due to water injection										1115	
90												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 4 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/3]; 60% fine and coarse gravel; 35% well-graded fine- to coarse-grained sand; 5% fines; moist due to water injection; (60,35,5)										1120	
95											1130	
100											1315	
105	@ 105' - decrease in gravel size to maximum of 0.25" diameter; slight increase in fines										1320	
110	@ 110' - increase in gravel size to maximum of 1.5" diameter										1327	
115	Well-Graded SAND with GRAVEL and SILT (SW-GW): olive brown [2.5Y 4/3]; 30% fine gravel (angular to subangular); 60% well-graded fine- to coarse-grained sand; 10% fines; moist due to water injection; (30,60,10)										1332	
120												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 5 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND with GRAVEL and SILT (SW-GW): slight increase in fines; (30,60,10)										1337	
125											1340	
130	@ 130' - coarse gravel <1.5" diameter										1343	
135											1348	
140	@ 140' - moist due to water injection										1405	From 140' - 155', rate of drilling is approximately 1.33 ft/min.
145											1410	
150												

CONTRACTOR WDC Exploration & Wells
EQUIPMENT Peterbilt SpeedStar 30K
DRILL MTHD Air Rotary Casing Hammer
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5"
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NORTHING 1878329.50
EASTING 6738651.87
COORDINATE SYSTEM: NAD-83 Zone 5

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 6 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND with GRAVEL and SILT (SW-GW): angular to subangular gravels <1.5" diameter; (30,60,10)										1415	
155											1425	
160											1450	From 160' - 175', rate of drilling is approximately 0.5 ft/min.
165	GRAVELLY SAND/SANDY GRAVEL (GW-SW): olive brown [2.5Y 4/3]; 40% fine to coarse gravel (angular to subangular, <1" diameter); 45% well-graded fine- to coarse-grained sand; 15% fines; no staining or unusual odors; (40,45,15)										1455	
170											1510	
175											1520	
180												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 7 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVELLY SAND/SANDY GRAVEL (GW-SW): gravel sizes <1" diameter; (40,45,15)										1540	
185											1550	From 185' - 200', rate of drilling is approximately 0.3 ft/min.
190											1558	
195	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/3]; 80% fine to coarse gravel (angular to subangular, <1.25" diameter); 20% poorly graded coarse-grained sand; 5% fines; wet due to water injection; no staining; no unusual odors; (80,20,5)										1615	
200											1640	@ 199', bottom of 13 3/8" diameter casing. Begin telescoping 11 3/4" steel casing.
205	GRAVELLY SAND/SANDY GRAVEL (GW-SW): olive brown [2.5Y 4/4]; 45% gravel (angular to subangular, <1" diameter); 45% well-graded fine- to coarse-grained sand; 10% fines; moist due to water injection; no staining; no unusual odors; (45,45,10)										0932	From 205' - 235', rate of drilling is approximately 0.54 ft/min.
210												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 8 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVELLY SAND/SANDY GRAVEL (GW-SW): angular to subangular gravels <1" diameter; (45,45,10)										0935	
215	@ 215' - decrease in gravel sizes to maximum 0.5" diameter (fine gravels)										0938	
220	@ 220' - increase in fine gravel to 65%; 25% poorly graded medium-grained sand; 10% fines; (65,25,10)										0952	From 220' - 235', rate of drilling is approximately 0.54 ft/min.
225	Well-Graded SAND with GRAVEL and SILT (SW-GW): olive brown [2.5Y 4/4]; 35% fine gravel; 55% well-graded coarse- to fine-grained sand; 10% fines; moist due to water injection; (35,55,10)										0955	
230	GRAVELLY SAND/SANDY GRAVEL (GW-SW): olive brown [2.5Y 4/4]; 45% fine gravel; 45% well-graded coarse- to medium-grained sand; 10% fines; moist due to water injection; (45,45,10)										1000	
235	@ 235' - increase in fine to coarse gravel size to maximum 1" diameter										1020	
240												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 9 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	GRAVELLY SAND/SANDY GRAVEL (GW-SW): angular to subangular gravel; (45,45,10)										1040	From 240' - 255', rate of drilling is approximately 0.88 ft/min.
245											1045	
250	Well-Graded SAND with GRAVEL and SILT (SW-GW): olive brown [2.5Y 4/4]; 35% fine gravel (angular to subangular, <0.5" diameter); 55% well-graded fine- to coarse-grained sand; 10% fines; moist due to water injection; (35,55,10)										1050	
255											1057	
260											1115	From 260' - 275', rate of drilling is approximately 0.65 ft/min.
265	@ 265' - increase in fine gravel to 40%; 50% well-graded fine- to coarse-grained sand; 10% fines; (40,50,10)										1120	
270												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 10 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND with GRAVEL and SILT (SW-GW): angular to subangular gravel; (40,50,10)										1130	
275											1138	
280	@ 280' - decrease in fine gravel to 25%; 65% well-graded fine- to coarse-grained sand; 10% fines; (25,65,10)										1155	From 280' - 295', rate of drilling is approximately 0.75 ft/min.
285	SILTY SAND (SM): olive brown [2.5Y 4/4]; 10% fine gravel (angular to subangular); 65% well-graded fine- to coarse-grained sand; 25% fines; no staining; no unusual odor; (10,65,25)										1200	
290											1205	
295											1215	
300												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 11 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SM): olive brown [2.5Y 4/4]; 15% fine gravel; 60% well-graded coarse- to fine-grained sand; 25% fines; moist due to water injection; (15,60,25)										1330	
305											1334	
310	@ 310' - increase in gravel size (well-graded fine to coarse gravels)										1338	
315											1343	
320	@ 320' - angular to subangular gravel										1347	
325											1410	From 325' - 335', rate of drilling is approximately 0.33 ft/min.
330												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 12 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND/SANDY SILT (SM-ML): olive brown [2.5Y 4/4]; 5% fine gravel; 55% well-graded fine- to coarse-grained sand; 40% fines; (5,55,40)										1420	
335	Well-Graded GRAVEL with SAND (GW-SW): olive brown [2.5Y 4/4]; 60% well-graded fine to coarse gravel (subangular to angular, <0.75" diameter); 20% medium- to coarse-grained sand; 10% fines; (60,20,10)										1430	
340	SILTY SAND/SANDY SILT (SM-ML): olive brown [2.5Y 4/4]; 5% fine gravel; 50% well-graded coarse- to medium-grained sand; 45% fines; moist due to water injection; no staining; no unusual odors; (5,50,45)										1452	From 340' - 355', rate of drilling is approximately 0.65 ft/min.
345											1457	
350	SILTY SAND (SM): olive brown [2.5Y 4/4]; 5% fine gravel; 60% well-graded coarse- to fine-grained sand; 35% fines; moist due to water injection; (5,60,35)										1505	
355											1515	
360												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 13 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): angular to subangular gravel; (5,60,35)										1530	From 360' - 375', rate of drilling is approximately 0.83 ft/min.
365											1535	@ 365', stopped injecting water into borehole.
370	SILTY SAND/SANDY SILT (SM-ML): olive brown [2.5Y 4/4]; 5% fine gravel; 50% well-graded fine- to medium-grained sand; 45% fines; damp due to water injection; (5,50,45)										1542	
375											1548	
380	@ 380' - 20% fine gravel (angular to subangular); 40% well-graded fine- to coarse-grained sand; 40% fines; damp; no staining; no unusual odors; (20,40,40)										1600	From 380' - 395', rate of drilling is approximately 1.0 ft/min.
385											1605	
390												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 14 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND/SANDY SILT (SM-ML): angular to subangular gravel; (20,40,40)										1610	
395											1615	
400	SANDY SILT with CLAY (ML-CL): dark yellowish brown [10YR 4/6]; 5% fine gravel; 20% poorly graded fine-grained sand; 75% fines; very moist; medium plasticity; no staining; no unusual odors; (5,20,75)										1646	From 400' - 415', rate of drilling is approximately 1.25 ft/min.
405											1650	
410	CLAYEY SAND/SILTY SAND (SC-SM): dark yellowish brown [10YR 4/6]; 5% fine gravel; 55% well-graded fine- to coarse-grained sands; 40% fines; damp; no plasticity; no staining; no unusual odors; (5,55,40)										1655	
415	@ 415' - increase in coarse-grained sand; (5,55,40)										1658	
											0710	
420												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 15 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY SAND/SILTY SAND (SC-SM): damp; (5,55,40)										0720	
425											0723	
430	SANDY SILT with CLAY (ML-CL): light olive brown [2.5Y 5/4]; trace fine gravel; 25% well-graded very fine- to coarse-grained sand; 75% fines; damp; medium plasticity (tr,25,75)										0727	
435	SILTY SAND/SANDY SILT (SM-ML): light olive brown [2.5Y 5/4]; trace fine gravel; 55% well-graded very fine- to coarse-grained sand; 45% fines; lenses of very fine-grained sand and fine gravel; damp; (tr,55,45)										0735	From 437' - 470', open borehole drilling with a 10 5/8-inch diameter drill bit beginning at 0750 on 11 June 2004.
440	@ 440' - increase in coarse-grained sand; angular to subangular gravel; (tr,55,45)										0752	
445	@ 445' - decrease in coarse-grained sand; becomes very moist; (tr,55,45)										0754	
450												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 16 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND/SANDY SILT (SM-ML): poorly graded very fine- to medium-grained sand; dry; (tr,55,45)			Temporary well PW-2-T01-468 screened from 458' - 468'. Static water level measured at 462.5'.							0835	
455	@ 455' - increase in medium-grained sand; becomes moist; (tr,55,45)										0838	
460	@ 460' - well-graded fine- to coarse-grained sand; moist; (tr,55,45)										0842	
						PW-2-T01-468 (Groundwater Sample)						
465	CLAYEY SAND (SC): dark yellowish brown [10YR 4/6]; 60% poorly graded very fine- to fine-grained sand (angular to subangular); 40% fines; very moist; (tr,60,40)			▽ @ 465', encountered first groundwater NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-2							1026	
470	@ 470' - 75% well-graded fine- to medium-grained sand; 25% fines; moist; (tr,75,25)										1030	
475												@ 475', no recovery for logging.
480												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 17 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND with GRAVEL and SILT (SW-SM): light olive brown [2.5Y 5/4]; 25% fine gravel; 60% fine- to coarse-grained sand; 15% fines; damp; (25,60,15)										1338	
485	CLAY with SAND and GRAVEL (CL-SC): olive brown [2.5Y 4/4]; 20% fine gravel; 20% medium- to coarse-grained sand; 60% fines; lenses of very fine-grained sand and fines; very moist; medium plasticity; slow dilatancy; (20,20,60)			Temporary well PW-2-T02-496 screened from 491' - 496'. Static water level measured at 462.5'.							1405	
490	@ 490' - increase in coarse-grained sand to 30%; decrease in fines to 50%; 20% fine gravel; very moist; (20,30,50)										1420	
	CLAYEY GRAVEL (GW-CL): olive brown [2.5Y 4/4]; 60% fine to coarse gravel (angular to subangular, <1" diameter); 10% well-graded medium- to coarse-grained sand; 30% fines, wet; (60,10,30)			@ 492', encountered groundwater	PW-2-T02-496 (Groundwater Sample)						1600	heaving gravels, no soil sample collected.
495	@ 495' - color change to light olive brown [2.5Y 5/6]; increase in gravel size to <1.25" diameter			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-2							1615	
	GRAVELLY CLAY (CL-GW): light olive brown [2.5Y 5/6]; 30% fine to coarse gravel; 10% well-graded fine- to coarse-grained sand; 70% fines; wet; (30,10,70)										1620	
500	@ 500' - increase in gravel size to <1" diameter										0802	
505	SANDY CLAY (CL): yellowish brown [10YR 5/6]; 5% fine gravel; 10% well-graded fine- to coarse-grained sand; 85% clay; wet; medium dilatancy; (5,10,85)										0812	
510												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 18 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY SAND (SC): yellowish brown [10YR 5/6]; 15% fine gravel (angular to subangular, <1" diameter); 70% well-graded medium- to coarse-grained sand; 15% fines; wet; (15,70,15)			Temporary well PW-2-T03-520 screened from 515' - 520'. Static water level measured at 498.79'.							0840	
515	@ 515' - color change to dark yellowish brown [10YR 4/6]; trace fine gravel; 85% poorly graded fine- to medium-grained sand (angular to subangular); 15% fines; wet; (tr,85,15)										0845	
					PW-2-T03-520 (Groundwater Sample)							
520	@ 520' - color change to light olive brown [2.5Y 5/4]; 10% fine gravel (angular to subangular); 75% well-graded medium- to coarse-grained sand (angular to subangular); 15% fines; iron oxide staining; wet; (10,75,15)			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-2	PW-2-T03-522.5-GT (Soil Sample)			5-26-38				From 521' - 522.5', collected drive soil samples PW-2-522-GT & PW-2-T03-522.5 using a 325-lb hammer.
525	SILTY SAND (SM-ML): light olive brown [2.5YR 5/4]; trace gravel (angular to subangular); 65% sand (30% fine-grained, angular to subangular sand); 35% fines; wet; (tr,65,35)										0710	
530	@ 530' - increase in gravel to <5%											
535	@ 535' - little to no gravel; interbedded lenses of clay and sand										0820	
540												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 19 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM-ML): 70% poorly graded sand (>50% fine-grained, rounded to subangular); 30% fines; (0,70,30)											
545	SILT (ML): yellowish brown [10YR 5/6]; 5% sand; 95% fines; (0,5,95)											
550	@ 550' - increase in silt; (0,tr,100)					PW-2-552-GT (Soil Sample)						@ 522', free water in borehole.
555	SILTY SAND with GRAVEL (SM): yellowish brown [10 YR 5/4]; 15% fine gravel; 70% well-graded fine- to coarse-grained sand; 15% fines; medium dilatancy; wet; (15,70,15)										1357	From 557' - 567', rate of drilling is approximately 0.11 ft/min.
560	SANDY CLAY with GRAVEL (CL-SC): dark yellowish brown [10YR 4/4]; 10% fine gravel, 35% well-graded medium- to coarse-grained sands (angular and subangular); 55% fines; medium dilatancy; wet due to water injection into borehole; (10,35,55)										1420	@ 562', injecting water into borehole.
565											1515	
570												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 20 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY CLAY with GRAVEL (CL-SC): wet; (10,35,55)			Temporary well PW-2-T04-587 screened from 577' - 587'. Static water level measured at 572.22'.							1530	@ 570', borehole producing abundant water.
											0925	
575	SANDY SILT with CLAY (ML): yellowish brown [10YR 4/6]; trace fine gravel; 15% poorly graded medium- to coarse-grained sand; 85% fines; dry lense; (tr,15,85) @ 576' - wet @ 577' - sand grain size decreases to poorly graded medium- to fine-grained sand										0935	From 575' - 576', borehole not producing water (dry lens).
											0955	
580	@ 580' - color change to olive brown [2.5YR 4/4]; 5% fine gravel; 25% well graded medium- to coarse-grained sand; 70% fines; wet; (5,25,70)			@ 580', encountered groundwater		PW-2-T04-587 (Groundwater Sample)					1020	@ 580', borehole producing abundant water.
585	CLAYEY SAND/SILTY SAND (SC-SM): olive brown [2.5YR 4/6]; 5% fine gravel; 55% poorly graded fine- to medium-grained sand; 40% fines; wet; (5,55,40)			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-2		PW-2-T04-589-GT (Soil Sample)		21-37-56	100		1030	@ 587', bottom of 11 3/4" diameter steel drive casing. Begin telescoping 9 5/8" diameter steel drive casing. From 588' - 589.5', drive soil sample PW-2-T04-589-GT collected using a 325-lb hammer.
590	@ 590' - increase in grain size to well-graded medium- to coarse-grained sand; (5,55,40) @ 591' - SILTY SAND (SM): olive brown [2.5YR 4/4]; trace gravel; 80% well-graded fine- to coarse-grained sand; 20% fines; wet; (tr,80,20)										1035	
											0810	@ 590', borehole producing less water. From 591' - 594', borehole producing abundant water.
595	CLAYEY SAND/SILTY SAND (SC-SM): olive brown [2.5Y 4/4]; 0% gravel; 60% well-graded fine- to medium-grained sand; 40% fines; dry										0825	
600												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 21 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND with SILT (SW): olive brown [2.5Y 4/4]; 0% gravel; 90% well-graded fine- to medium-grained sand (angular to subrounded); 10% fines; moist; (0,90,10)										0955	
605	Well-Graded SAND with GRAVEL and SILT (SW-GW): olive brown [2.5Y 4/4]; 25% fine to coarse gravel (subangular, <0.75" diameter); 65% well-graded fine- to coarse-grained sand (angular to subrounded); 10% fines; moist; (25,65,10)										1010	
610	@ 610' - damp to moist										1020	
615	@ 615' - gravel diameter increases to <1.0"										1030	
620											1047	
625	@ 625' - increasing gravels										1100	
630												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-2 **SHEET** 22 **OF** 22
START DRILL DATE Jun 3, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jun 29, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1639.36 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND with GRAVEL and SILT (SW-GW): 40% well-graded fine to coarse gravel; 50% well graded medium- to coarse-grained sand; 10% fines; wet; (40,50,10)			@ 630' encountered groundwater							1110	@ 630', borehole producing abundant water.
635	@ 635' - 25% fine to coarse gravel, 65% well-graded fine- to coarse-grained sand; 10% fines; moist; (25,65,10)			Temporary well PW-2-T05-640 screened from 635' - 640'. Static water level measured at 621.49'.							1117	
	@ 637' - trace clay										1120	
						PW-2-T05-640 (Groundwater Sample)						
640				NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-2								
						PW-2-T05-643.5 (Soil Sample)		17-12-26	66			From 642' - 643.5', drive soil sample PW-2-T05-643.5 collected using a 325-lb hammer. @ 642', bottom of 9 5/8" diameter steel drive casing. Open borehole diameter 8.5" from 642' to total depth.
645	Boring terminated at a depth of 644'. Borehole caved up to 642.5'. Permanent well PW-2 was subsequently installed. Refer to well construction diagram for permanent well PW-2.											
650												
655												
660												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878329.50
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6738651.87
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 10 5/8", 8.5" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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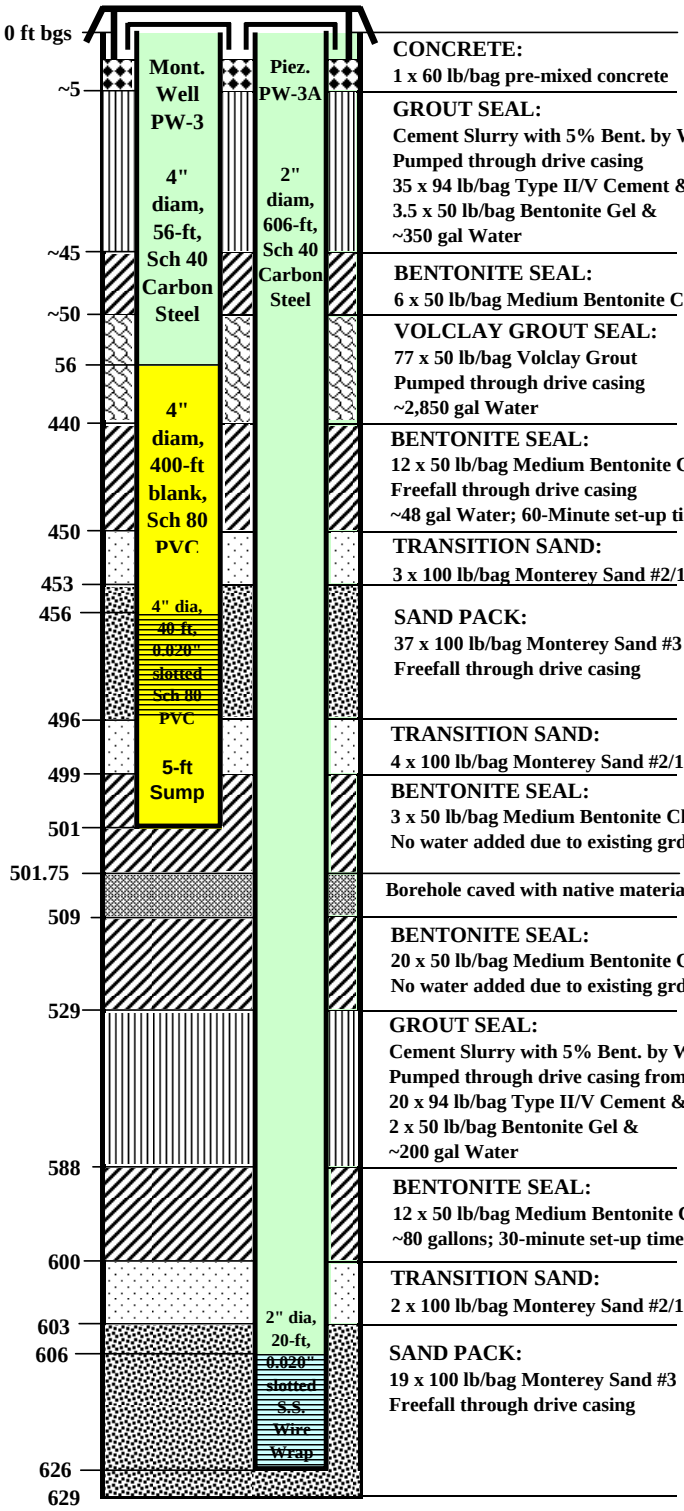
GeoSyntec Consultants
200 East Del Mar Boulevard, Suite 250
Pasadena, California 91105
Phone: (626) 449-0664

WELL CONSTRUCTION LOG

Boring ID: **PW-3**
Start Drill Date: 9 July 2004
Finish Drill Date: 26 July 2004
Location: North Locust Avenue
Project: 160-Acre Parcel, Rialto, CA
Number: HA0816
Logger: PL
Reviewer: KA

Elevation Top of Casings: 1611.81 ft MSL
Vert Datum: NGVD-29; HVC-11 (Elev=1622.84)
Northing: 1877913.40
Easting: 6740260.99
Horiz Datum: NAD-83 Zone 5

BELOW GROUND SURFACE COMPLETION:
Well Box: Flush-Mounted, Traffic-Rated Steel
Protective Covers: Locking Well Caps



CONCRETE:
1 x 60 lb/bag pre-mixed concrete

GROUT SEAL:
Cement Slurry with 5% Bent. by Wt.
Pumped through drive casing
35 x 94 lb/bag Type II/V Cement &
3.5 x 50 lb/bag Bentonite Gel &
~350 gal Water

BENTONITE SEAL:
6 x 50 lb/bag Medium Bentonite Chips

VOLCLAY GROUT SEAL:
77 x 50 lb/bag Volclay Grout
Pumped through drive casing
~2,850 gal Water

BENTONITE SEAL:
12 x 50 lb/bag Medium Bentonite Chips
Freefall through drive casing
~48 gal Water; 60-Minute set-up time

TRANSITION SAND:
3 x 100 lb/bag Monterey Sand #2/16

SAND PACK:
37 x 100 lb/bag Monterey Sand #3
Freefall through drive casing

TRANSITION SAND:
4 x 100 lb/bag Monterey Sand #2/16

BENTONITE SEAL:
3 x 50 lb/bag Medium Bentonite Chips
No water added due to existing grdwtr

Borehole caved with native materials

BENTONITE SEAL:
20 x 50 lb/bag Medium Bentonite Chips
No water added due to existing grdwtr

GROUT SEAL:
Cement Slurry with 5% Bent. by Weight
Pumped through drive casing from surface
20 x 94 lb/bag Type II/V Cement &
2 x 50 lb/bag Bentonite Gel &
~200 gal Water

BENTONITE SEAL:
12 x 50 lb/bag Medium Bentonite Chips
~80 gallons; 30-minute set-up time

TRANSITION SAND:
2 x 100 lb/bag Monterey Sand #2/16

SAND PACK:
19 x 100 lb/bag Monterey Sand #3
Freefall through drive casing

WELL DIAGRAM NOT TO SCALE

DRILLING SUMMARY:
Total Boring Depth: 629 ft bgs
Drilling Method: Air Rotary Casing Hammer
Drilling Fluid: Air / Injected Water (Municipal Hydrant)
Contractor: WDC Exploration & Wells
Drilling Rig: Peterbilt SpeedStar 30K

Telescoping Drive Casing Diameters:	*Tricone Drill Bit Diameters:*
13 3/8" to 199 ft bgs	12 1/4" to 199 ft bgs
11 3/4" to 500 ft bgs	10 5/8" to 500 ft bgs
9 5/8" to 627 ft bgs	8 1/2" to 629 ft bgs

WELL CONSTRUCTION DETAILS:
Well Construction Dates: 26 July through 2 August 2004

MONITORING WELL PW-3:
Total Well Depth: 501 ft bgs
Well Development Date: 5 and 6 August 2004
Blank Well Casing: Virgin, flush-threaded, 4"-diameter, Schedule 40 carbon steel (from ground surface to 56 ft bgs); Virgin, factory-sealed, flush-threaded, 4"-diameter, Schedule 80 PVC (from 56 to 456 ft bgs)
Well Screen Interval: Virgin, factory-sealed, flush-threaded, 4"-diam, 0.020" slotted, Sch 80 PVC (from 456 to 496 ft bgs)
Length of End Cap / Sump: 0.40 ft / 4.81 ft
Centralizers (3 total): Metal (directly above and below the screen interval and at 416 ft bgs)

PIEZOMETER PW-3A:
Total Piezometer Depth: 626 ft bgs
Blank Well Casing: Virgin, flush-threaded, 2"-diameter, Sch 40 carbon steel (from ground surface to 606 ft bgs)
Well Screen Interval: Virgin, 2"-diameter, stainless steel wire wrap with 0.020" slots (from 606 to 626 ft bgs)
Length of End Cap: 0.23 ft
Centralizers (2 total): PVC with metal screws (above and below the screen interval)

TEMPORARY WELLS INSTALLED

Temporary Well ID	*Installation Date*	*Well Depth (ft bgs)*	*Screen Interval (ft bgs)*	*Approx. Static Water Level (ft bgs)*
PW-3-TO1-466	13-Jul-04	466	461 - 466	450.71
PW-3-TO2-505	14-Jul-04	505	500 - 505	458.00
PW-3-TO3-545	16-Jul-04	545	540 - 545	512.50
PW-3-TO4-585	20-Jul-04	585	580 - 585	564.65
PW-3-TO5-615	22-Jul-04	615	610 - 615	590.95

DRIVE SOIL SAMPLES COLLECTED

Soil Sample ID	*Sampling Depth (ft bgs)*	*Sample Date*
PW-3-TO1-468.5-GT	468.5	13-Jul-04
PW-3-T03-548-GT	548	15-Jul-04

NOTES:
On 6 August 2004, it was discovered that piezometer PW-3A was damaged during installation and filter pack sand was inside the piezometer at a top depth of 606 ft bgs. Thus, the piezometer was not developed and was repaired in January 2005.

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 1 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	ARTIFICIAL FILL Asphalt Surface; 2.5" thick											Borehole telescoping diameters and approximate depths: 13 3/8" diameter steel casing (0' - 199'), 11 3/4" diameter steel casing (199' - 500') 9 5/8" diameter steel casing (500' - 627'), 8.5" diameter open borehole to (627' - 629').
5	SANDY GRAVEL (GW): olive brown [2.5Y 4/4]; 50% well-graded fine to coarse gravel; 20% cobbles (up to 8" diameter); 30% well graded fine- to coarse-grained sand; trace fines; dry; medium dense; (70,30,tr)										0845	Air knifing from 0' - 8'. Grab sample collected every 5' unless otherwise noted. From 0' - 17', rate of drilling is approximately 0.49 ft/min.
10	@ 10' - becomes moist due to water injection; gravel sizes <1.5" diameter (angular to subrounded)										1035	Water injection into borehole.
15	SANDY GRAVEL/GRAVELLY SAND (GW): olive brown [2.5Y 4/3]; 40% fine to coarse gravel; 50% well-graded fine- to coarse-grained sand; 10% fines; (40,50,10)										1100	Very slow drilling due to large cobbles/boulders. From 17' - 37', rate of drilling is approximately 1.33 ft/min.
20	@ 20' - very large cobbles/boulders										1122	
25											1125	
30												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 2 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL/GRAVELLY SAND (GW): cobble fragments; (40,50,10)										1127	
35											1130	
												From 37' - 57', rate of drilling is approximately 1.0 ft/min.
40											1147	
45	@ 45' - moist due to water injection										1150	
50											1155	
55	@ 55' - slight increase in gravels; (45,45,10)										1200	
												From 57' - 77', rate of drilling is approximately 0.51 ft/min.
60												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 3 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL/GRAVELLY SAND (GW): very large cobbles/boulders; (45,45,10)										1325	
65	@ 65' - very large cobbles/boulders										1335	
70											1340	
75											1349	From 77' - 97', rate of drilling is approximately 0.57 ft/min.
80	@ 80' - angular and subangular gravel <1" diameter										1420	
85											1430	
	@ 87' - very large cobbles/boulders										1435	
90												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 4 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SILTY SANDY (GW-SM): olive brown [2.5Y 4/3]; 50% fine to coarse gravel (angular to subangular, <1.5" diameter); 25% well-graded fine- to coarse-grained sand; 15% fines; moist due to water injection; large cobbles/boulders; (50,25,15)										1440	
95											1445	From 97' - 117', rate of drilling is approximately 1.5 ft/min.
100	SILTY SAND with GRAVEL (SM-GW): olive brown [2.5Y 4/3]; 35% well-graded fine to coarse gravel (angular to subangular, <1" diameter); 45% fine- to medium-grained sand (angular to subangular); 20% fines, moist due to water injection; (35,45,20)										1505	
105	@ 105' - sand becomes well-graded fine- to medium-grained sand; (35,45,20)										1507	
110											1511	
115											1516	From 117' - 127', rate of drilling is approximately 1.33 ft/min.
120												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 5 OF 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SILTY SANDY (GW-SM): olive brown [2.5YR 4/3]; 60% well-graded fine to coarse gravel (angular to subrounded, <1.25" diameter); 20% medium- to coarse-grained sand; 20% fines; moist due to water injection; no unusual odors or stains; (60,20,20)										1535	
125											1538	From 127' - 157', rate of drilling is approximately 1.67 ft/min.
130											1541	
135											1545	
140	Well-Graded GRAVEL with CLAY and SAND (GW-SC): olive brown [2.5Y 4/4]; 45% well-graded fine and coarse gravel; 25% well-graded fine- to coarse-grained sand; 30% fines; wet due to water injection; no unusual odors; (45,25,30)										1615	@ 140', continue injecting water into the borehole to remove cuttings.
145											1617	
150												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 6 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with CLAY and SAND (GW-SC): slight increase in gravel; (45,25,30)										1620	
155											1622	
160											1628	@ 160', continue injecting water into the borehole to remove soil cuttings.
165	@ 165' - wet due to water injection										0712	
170											0715	
175	@ 175' - well-graded fine to coarse gravel; (45,25,30)										0721	
180												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 7 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with CLAY and SAND (GW-SC): moist due to water injection; (45,25,30)										0730	
185	@ 185' - large cobbles/boulders										0740	From 185' - 199', difficult drilling due to large cobbles/boulders.
190											0750	
195	@ 195' - cobble fragments										0803	
200											1021	@ 199', bottom of 13 3/8" diameter steel drive casing. Begin telescoping 11 3/8" diameter steel drive casing.
205	Well-Graded GRAVEL with CLAYEY SAND (GW-SC): light olive brown [2.5Y 5/4]; 30% fine gravel; 50% well-graded fine- to coarse-grained sand (angular to subangular); 20% fines; moist due to water injection; no unusual odors; (30,50,20)										1025	
210												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 8 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): olive brown [2.5Y 4/4]; 70% well-graded very fine- to coarse-grained sand (angular to subangular); 30% fines; damp due to water injection; no unusual odors (tr,70,30)										1039	
215											1047	
220											1057	
225	@ 225' - decrease in fine-grained sand; (tr,70,30)										1101	
230	@ 232' - increase in fine gravel to 20%; (20,50,30)										1104	From 232' - 245', difficult drilling due to large cobbles/boulders.
235	SILTY SAND with GRAVEL (SM-GW): olive brown [2.5Y 4/4]; 25% fine to coarse gravel (<0.5" diameter); 45% well-graded very fine- to coarse-grained sand; 30% fines; damp due to water infection; (25,45,30)										1110	
240												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 9 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SM-GW): increase in gravel to 35%; decrease in gravel size (<0.25" diameter); (35,35,30)										1131	From 240' - 255', rate of drilling is approximately 1.7 ft/min.
245											1132	
250	@ 250' - color change to dark yellowish brown [10YR 4/6]; decrease in gravel to 25%; increase in very fine-grained sand; (25,45,30)										1136	
255	@ 255' - slightly plastic fines; gravel (subangular to angular); (25,45,30)										1140	From 255' - 259', difficult drilling due to large cobbles/boulders. From 257' - 277', rate of drilling is approximately 1.18 ft/min.
260	SILTY SAND (SM): light olive brown [2.5Y 5/4]; trace fine gravel; 85% well-graded very fine- to coarse-grained sand (angular to subrounded); 15% fines; dry; no unusual odors; (tr,85,15)										1300	
265											1302	
270												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 10 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): angular to subrounded sand; (tr,85,15)										1305	
	@ 272' - sand becomes poorly-graded; (0,85,15)											From 273' - 275', difficult drilling due to large cobbles/boulders.
275											1310	
	@ 276' - sand becomes well-graded; (0,85,15)											From 277' - 297', rate of drilling is approximately 1.18 ft/min.
280											1342	
285											1345	
290	@ 290' - increase in coarse-grained sand; (0,85,15)										1348	
295	@ 295' - increase in graves to 10%; (10,80,10)										1352	
	Poorly Graded SAND (SP): light olive brown [2.5Y 5/4]; 95% very fine- to fine-grained sand; 5% fines; dry; (0,95,5)										1405	From 297' - 317', rate of drilling is approximately 1.05 ft/min.
300												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 11 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Poorly Graded SAND (SP): very fine- to fine-grained sand; (0,95,5)											
	Well-Graded SAND (SW): light olive brown [2.5Y 5/4]; 95% fine- to medium-grained sand; 5% fines; dry; (0,95,5)											
305											1411	
310											1414	
315											1420	
	SILTY SAND (SM): light olive brown [2.5Y 5/4]; 70% poorly graded very fine-grained sand; 30% fines; damp due to water injection; (0,70,30)											From 317' - 337', rate of drilling is approximately 0.8 ft/min.
320											1437	
325	SILTY SAND (SM): olive brown [2.5Y 4/4]; 80% well-graded fine- to medium-grained sand; 20% fines; damp due to water injection; (0,80,20)										1443	
330												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 12 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY SAND with GRAVEL (SW-GC): light olive brown [2.5Y 5/4]; 35% fine to coarse gravel (subangular to subrounded, <0.75" diameter); 35% medium- to coarse-grained sand; 30% fines; damp due to water injection; (35,35,30)										1450	
	@ 332' - SILTY SAND (SM): olive brown [2.5Y 5/4]; trace fine gravel; 65% well-graded fine- to coarse-grained sand; 35% fines; damp; (tr,65,35)										1453	
335											1458	
	SILTY SAND/SANDY SILT (SM-ML): light olive brown [2.5Y 5/4]; 50% poorly graded very fine-grained sand; 50 % fines; damp; (0,50,50)										1510	
340											1513	
345	@ 345' - increase in sand grain size to fine sand; (0,55,45)										1516	
350	@ 350' - increase in sand grain size to well graded fine- to medium-grained; (0,55,45)										1520	
355	@ 355' - 60% poorly graded very fine- to fine-grained sand; 40% fines; damp due to water injection; (0,60,40)										1528	From 355' - 357', rate of drilling is approximately 1.11 ft/min. From 357' - 377', rate of drilling is approximately 1.33 ft/min.
360												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 13 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND/SANDY SILT (SM-ML): subangular to subrounded sand; (0,60,40)										1550	
365	@ 365' - color change to yellowish brown [10YR 5/6]; increase in sand grain size to well-graded very fine- to medium-grained sand; (0,60,40)										1554	
370	@ 370' - color change to dark yellowish brown [10YR 4/6]										1557	
375	SILTY SAND (SM): light olive brown [2.5Y 5/4]; 70% well-graded fine- to medium-grained sand; 30% fines; damp due to water injection; (0,70,30)										1600	From 377' - 397', rate of drilling is approximately 1.11 ft/min.
380											1614	
385	@ 385' - trace coarse-grained sand										1616	
390												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
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LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 14 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): 70% well-graded fine- to coarse-grained sand; 30% fines; (0,70,30)										1619	
395	@ 395' - color changes to olive brown [2.5Y 4/4]										1630	@ 397', terminated water injection into borehole.
400	@ 400' - damp										1643	
	@ 401' to 403' - poorly graded very fine- to fine-grained sand; (0,70,30)											
405	@ 405' - 70% well-graded fine- to coarse-grained sand; 30% fines; damp; (0,70,30)										1646	
410	@ 410' - 70% poorly graded fine- to medium-grained sand; 30% fines; damp; (0,70,30)										1649	
415											1652	From 417' - 427', open borehole drilling; no water in open borehole.
420												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
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DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
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LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 15 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY SAND (SC): light olive brown [2.5Y 5/4]; 70% poorly graded fine-grained sand (angular to subangular grains); 30% fines; moist; no plasticity; (0,70,30)										1702	
425	SILTY SAND (SM): light olive brown [2.5Y 5/4]; 70% well graded fine- to medium-grained sand (angular to subangular); 30% fines; damp; (0,70,30)										1706	@ 427', no free water observed.
430	@ 430' - color change to olive brown [2.5Y 4/4]; poorly graded fine-grained sand (angular to subangular); 30% fines; damp; (0,70,30)										0826	
435	@ 435' - color change to light olive brown [2.5Y 5/4]; 5% fine gravel (angular to subangular, <0.2" diameter); 65% well-graded fine- to coarse-grained sand; 30% fines; dry; no unusual odors; (5,65,30)									2.7	0839	From 437' - 447', rate of drilling is approximately 1.25 ft/min.
440	@ 440' - color change to olive brown [2.5Y 4/4]; no gravel; decrease in fines to 15%; 85% well-graded fine- to coarse-grained sand; dry; (0,85,15)										0932	
445										3.4	0934	From 447' - 457', rate of drilling is approximately 1.17 ft/min.
450												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 16 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): damp; (0,85,15)										0948	
455	@ 455' - 5% fine gravel (angular to subangular, <0.2" diameter); (5,80,15)										0955	
	@ 457' - decrease in gravel to trace; 85% well-graded fine- to coarse-grained sand; 15% fines; damp; (tr,85,15)			@ 458', encountered first groundwater							1015	From 457' - 467', open borehole drilling; water injected to stabilize borehole.
	@ 458' - Well-Graded GRAVEL with SILT (GW): olive brown [2.5Y 4/4]; 80% well-graded gravel (angular to subangular, <2"diameter); 20% fines; wet; (80,0,20)			Temporary well PW-3-T01-466 screened from 461' - 466'. Static water level measured at 450.71'.								
460											1020	
						PW-3-T01-466 (Groundwater Sample)						
465				NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-3							1025	
						PW-3-T01-468.5 (Soil Sample)		12-19-31	70%			From 467' - 468.5', drive soil sample PW-3-T01-468.5 collected using a 325-lb hammer.
	SILTY SAND (SM): light olive brown [2.5Y 5/6]; trace fine gravel (angular to subangular); 85% well-graded fine- to coarse-grained sand (angular to subangular); 15% fines; wet; (tr,85,15)										1035	
470											0759	From 467' - 477', rate of drilling is approximately 0.83 ft/min. From 467' - 510', borehole producing abundant water.
475	CLAYEY SAND with GRAVEL (SC): light yellowish brown (2.5Y 6/4); 25% fine to coarse gravel (angular to subangular, <1.5" diameter); 40% poorly graded fine- to medium-grained sand; 35% fines; wet; no unusual odors; (25,40,35)										0804	From 477' - 487', producing lots of water; rate of drilling is approximately 0.43 ft/min.
480												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 17 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY CLAY with GRAVEL (CL): light yellowish brown [2.5Y 6/4]; 10% fine gravel (angular to subangular, <0.5" diameter); 20% poorly graded fine- to medium-grained sand; 70% fines; slow dilatancy; wet; (10,20,70)										0830	
485											0841	From 487' - 497', rate of drilling is approximately 0.43 ft/min.
490	SANDY SILT with CLAY (ML-CL): light yellowish brown (2.5Y 6/4); 10% fine gravel; 25% well-graded medium- to coarse-grained sand; 65% fines (10% clay, 55% silt); wet; (10,25,65)										0915	
495				Temporary well PW-3-T02-505 screened from 500' - 505'. Static water level measured at 458.00'.							0923	
500	SILTY SAND with GRAVEL (SM): olive brown (2.5Y 4/4); 20% fine gravel (angular to subangular, <0.25" diameter); 50% well-graded medium- to coarse-grained sand (angular to subangular); 30% fines; wet; (20,50,30)				PW-3-T02-505 (Groundwater Sample)						0955	@ 500', bottom of 11 3/4" diameter steel drive casing. Begin telescoping 10 5/8" diameter steel drive casing.
505				NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-3							0957	
510												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 18 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SM): angular to subangular gravel; (20,50,30)										1008	@ 513', little to no free water observed.
515	CLAYEY SAND/SANDY CLAY (SC-CL): light olive brown [2.5Y 5/4]; 15% fine gravel; 45% well-graded fine- to coarse-grained sand; 40% fines; wet; (15,45,40)										1022	
520	@ 520' - 5% gravel; 60% well-graded fine- to coarse-grained sand; 35% fines; wet; (5,60,35)										1055	
525	CLAYEY SAND (SC): olive brown [2.5Y 4/4]; 80% well-graded fine- to medium-grained sand; 20% fines; moist; (0,80,20)										1100	
530	Poorly Graded SAND (SP): light olive brown [2.5Y 5/4]; 95% fine-grained sand; 5% fines; damp; (0,95,5)										1103	
535	Well Graded SAND (SW): olive brown [2.5Y 4/4]; 95% well-graded fine- to coarse-grained sand; 5% fines; damp; (0,95,5)										1105	
540												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 19 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	CLAYEY SAND/SANDY CLAY (SC-CL): light olive brown [2.5Y 5/4]; 55% well-graded fine- to coarse-grained sand; 45% fines; wet; (0,55,45)			@ 540', encountered groundwater Temporary well PW-3-T03-545 screened from 540' - 545'. Static water level measured at 512.50'.							1115	
						PW-3-T03-545 (Groundwater Sample)						
545	@ 545' - 15% fine gravels (angular to subangular, <0.2" diameter); 40% well-graded fine- to coarse-grained sand; 45% fines; wet (15,40,45)			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-3							1120	
	CLAYEY SILT (ML): yellowish brown [10YR 5/6]; no plasticity; dry; firm; mostly silt					PW-3-T03-548-GT (Soil Sample)			100			From 547' - 548.5', drive soil sample PW-3-T03-545 collected using a 325-lb hammer. @ 548', no free water observed.
550											0940	
555	SILTY SAND (SM): olive brown [2.5Y 4/3]; 10% fine gravels (angular to subangular); 65% well-graded fine- to coarse-grained sand (angular to subangular); 25% fines; moist; (10,65,25)										0950	
560	@ 560' - 5% fine gravel (angular to subangular); 80% well-graded fine- to coarse-grained sand (angular to subangular); 15% fines; damp; (5,80,15)										1011	
565	@ 565' - becomes dry										1017	
570												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 20 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM) dry; (5,80,15)										1030	
575				Temporary well PW-3-T04-585 screened from 580' - 585'. Static water level measured at 564.65'.							1040	
580	@ 580' - trace gravel; 85% well-graded fine- to medium-grained sand; 15% fines; very moist; (tr,85,15)										1142	
					PW-3-T04-585 (Groundwater Sample)							
585	Well-Graded SAND with GRAVEL (SW): light olive brown [2.5Y 5/4]; 15% fine gravel; 85% well-graded fine- to coarse-grained sand; trace fines; very moist; (15,85,tr)			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-3							1151	Free water observed between 587' - 599'.
590	SILTY SAND/SANDY SILT (SM-ML): light olive brown [2.5Y 5/4]; 55% poorly graded fine-grained sand; 45% fines; wet; no plasticity; slow dilatancy; (0,55,45)											
595	@ 595' - trace gravel; 55% well-graded very fine- to coarse-grained sand (angular to subangular); 45% fines; wet; (tr, 55,45)										1302	
600												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 21 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SM): olive brown [2.5Y 4/3]; 15% well-graded fine to coarse gravel (subangular to subrounded, <1" diameter); 60% poorly graded medium to coarse sand; 25% fines; moist; (15,60,25)										0755	
605	@ 605' - 15% fine gravel; 70% poorly graded medium- to coarse-grained sand; 15% fines; moist; no plasticity; (15,70,15)			Temporary well PW-3-T05-615 screened from 610' - 615'. Static water level measured at 590.95'.							0800	
610	@ 610' - 70% well-graded medium- to coarse-grained sand; very moist; (15,70,15)										0847	
						PW-3-T05-615 (Groundwater Sample)						From 613' - 616', very difficult hammering due to heaving sands.
615				NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-3							0916	
				@ 619', encountered groundwater								
620	@ 620' - 20% fine to coarse gravel (angular to subangular, <2" diameter); 50% well-graded fine- to medium-grained sand; 30% fines; wet; (20,50,30)										0936	
												@ 622', borehole producing lots of water; water injected to clean out borehole.
625											0930	
												@ 627' - bottom of 9 5/8" diameter steel drive casing. 8.5" diameter open borehole to total depth.
630												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM:
WELL BORE 12/03

BOREHOLE LOG

BORING PW-3 **SHEET** 22 **OF** 22
START DRILL DATE Jul 8, 04 **ELEVATION DATA:**
FINISH DRILL DATE Jul 26, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1611.81 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION 1) Lithology 5) Content (%) 2) Color 6) Plasticity 3) Moisture 7) Hardness 4) Grain Size 8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS 1) Rig 2) Odor 3) Air Monitoring
	Boring terminated at a depth of 629'. Permanent monitoring well PW-3 and piezometer PW-3A was subsequently installed in the same borehole. Refer to well construction log for permanent well PW-3.											
635												
640												
645												
650												
655												
660												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1877913.40
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740260.99
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

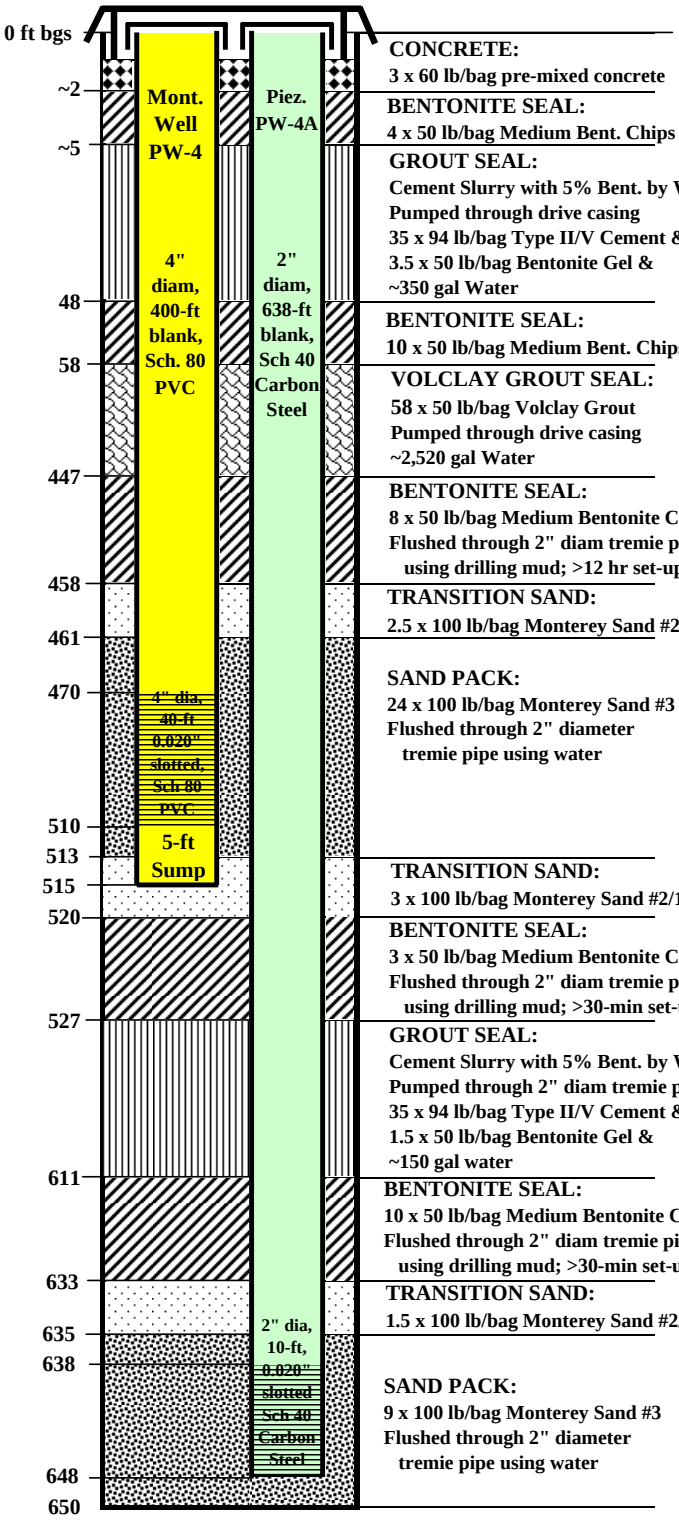
GeoSyntec Consultants
200 East Del Mar Boulevard, Suite 250
Pasadena, California 91105
Phone: (626) 449-0664

WELL CONSTRUCTION LOG

Boring ID: **PW-4**
Start Drill Date: 3 August 2004
Finish Drill Date: 11 September 2004
Location: North Locust Avenue
Project: 160-Acre Parcel, Rialto, CA
Number: HA0816
Logger: PL
Reviewer: KA

Elevation Top of Casings: 1626.56 ft MSL
Vert Datum: NGVD-29; HVC-11 (Elev=1622.84)
Northing: 1878655.92
Easting: 6740248.93
Horiz Datum: NAD-83 Zone 5

BELOW GROUND SURFACE COMPLETION:
Well Box: Flush-Mounted, Traffic-Rated Steel
Protective Covers: Locking Well Caps



WELL DIAGRAM NOT TO SCALE

DRILLING SUMMARY:
Total Boring Depth: 650 ft bgs
Drilling Method: Air Rotary Casing Hammer*
Drilling Fluid: Air / Injected Water / Drilling Mud*
Contractor: WDC Exploration & Wells
Drilling Rig: Peterbilt SpeedStar 30K and 100K

Telescoping Drive Casing Diameters:	*Tricone Drill Bit Diameters:*
13 3/8" to 199 ft bgs	12 1/4" to 199 ft bgs
11 3/4" to 499 ft bgs	10 5/8" to 499 ft bgs
9 5/8" to 516 ft bgs	8 1/2" to 650 ft bgs

WELL CONSTRUCTION DETAILS:
Well Construction Dates: 13 through 18 September 2004

MONITORING WELL PW-4:
Total Well Depth: 515 ft bgs
Well Development Date: 28 September 2004
Blank Well Casing: Virgin, factory-sealed, flush-threaded, 4"-diam, Sch 80 PVC (from ground surface to 470 ft bgs);
Well Screen Interval: Virgin, factory-sealed, flush-threaded, 4"-diam, 0.020" slotted, Sch 80 PVC (from 470 to 510 ft bgs)
Length of End Cap / Sump: 0.40 ft / 5.01 ft
Centralizers (2 total): PVC with metal screws (directly above and below the screen interval)

PIEZOMETER PW-4A:
Total Piezometer Depth: 648 ft bgs
Blank Well Casing: Virgin, flush-threaded, 2"-diameter, Sch 40 carbon steel (from ground surface to 638 ft bgs)
Well Screen Interval: Virgin, 2"-diameter, 0.020" slotted, Sch 40 carbon steel (from 638 to 648 ft bgs)
Length of End Cap: None (bottom of well welded closed)
Centralizers (2 total): PVC with metal screws (above and below the screen interval)

TEMPORARY WELLS INSTALLED

Temporary Well ID	*Installation Date*	*Well Depth (ft bgs)*	*Screen Interval (ft bgs)*	*Approx. Static Water Level (ft bgs)*
PW-4-TO1-485	12-Aug-04	485	480 - 485	460.3
PW-4-TO2-525	13-Aug-04	525	520 - 525	464.42
PW-4-TO3-575	16-Aug-04	575	570 - 575	566.10
PW-4-TO4-617.5	19-Aug-04	617.5	612.5 - 617.5	615.55
PW-4-TO5-625	23-Aug-04	625	620 - 625	567.90
PW-4-TO6-647.5	26-Aug-04	647.5	642.5 - 647.5	615.50

DRIVE SOIL SAMPLES COLLECTED

Soil Sample ID	*Sampling Depth (ft bgs)*	*Sample Date*
PW-4-TO1-487.5-GT	487.5	12-Aug-04
PW-4-TO2-527.5-GT	527.5	13-Aug-04
PW-4-601.5-GT	601.5	18-Aug-04

NOTES: *The initial drilling to a depth of 648 ft bgs was completed in August 2004 using ARCH drilling techniques. However, during installation of the permanent wells, technical difficulties, including significant caving of the formation, as well as mechanical problems with the drilling rig were encountered . While drilling out the caved materials and reestablishing the borehole to depth, refusal was encountered at a depth of ~617 ft bgs. As a result, mud rotary drilling techniques were employed to re-install the permanent wells.

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 1 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	ARTIFICIAL FILL Asphalt Surface; 3" thick											Borehole telescoping diameters and approximate depths: 13 3/8" diameter steel casing (0' - 199'), 11 3/4" diameter steel casing (199' - 499') 9 5/8" diameter steel casing (499' - 516'), 8 1/2" diameter open borehole (516' - 650'). Air knifing from 0' - 7'. Grab sample collected every 5' unless otherwise noted.
5	Well-Graded GRAVEL with SAND (GW): olive brown [2.5Y 4/4]; 50% well-graded fine and coarse gravel; 20% cobbles (<8" diameter); 30% well-graded fine- to coarse-grained sand; trace fines; dry; medium dense (70,30,tr)										1500	
10	@ 10' - color change to very dark grayish brown [2.5Y 3/2]; wet due to water injection; subangular to subrounded gravel										1055	Water injected into borehole to assist in removing cuttings; no headspace reading due to continued water injection.
15	@ 15' - gravel sizes <1.5" diameter										1330	
20											1215	
25	SANDY GRAVEL/GRAVELLY SAND (GW-SW): olive gray [5Y 4/2]; 40% well-graded fine to coarse gravel (angular to subangular, <1.5" diameter); 40% well-graded fine- to coarse-grained sand; 20% fines; damp due to water injection; (40,40,20)										1219	
30												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 2 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL/GRAVELLY SAND (GW-SW): large cobbles/boulders; (40,40,20)										1228	
35											1240	From 38' - 41', difficult drilling due to large cobbles/boulders.
40	@ 40' - color change to olive [5Y 4/3]; wet due to water injection										1520	
45											0950	
50	SANDY GRAVEL with SILT (GW): olive gray [5Y 4/2]; 55% well-graded fine to coarse gravel (angular to subrounded, <1.5" diameter); 30% well-graded medium- to coarse-grained sand; 15% fines; wet due to water injection; (55,30,15)										0952	
55											1003	
60												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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BOREHOLE LOG

BORING PW-4 **SHEET** 3 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL with SILT (GW): gravel size <1.5" diameter; (55,30,15)										1006	
65	SILTY SAND with GRAVEL (SW-SM): olive [5Y 4/3]; 35% fine and coarse gravel; 45% well-graded fine- to coarse-grained sand; 15% fines; moist due to water injection; (35,45,15)										1125	
	@ 68' - large cobbles/boulders											From 68' - 105', very difficult drilling due to large cobbles/boulders.
70	SANDY GRAVEL with SILT (GW): olive [5Y 4/3]; 55% well-graded fine to coarse gravel (angular to subangular, <2" diameter); 30% well-graded medium- to coarse-grained sand (angular to subangular); 15% fines; wet due to water injection; (55,30,15)										1133	
75											1138	
80	@ 80' - large cobbles/boulders										1405	
85											1409	
90												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
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BOREHOLE LOG

BORING PW-4 **SHEET** 4 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL with SILT (GW): color change to light olive brown [2.5Y 5/3]; (55,30,15)										1418	
95	SANDY GRAVEL/GRAVELLY SAND (GW-SW): light olive brown [2.5Y 5/3]; 40% well-graded fine to coarse gravel (angular to subrounded, <2" diameter); 40% well-graded medium- to coarse-grained sand; 20% fines; wet due to water injection; (40,40,20)										1426	From 96' - 116', rate of drilling is approximately 0.91 ft/min.
100	@ 100' - decrease in fine gravel to 35% (angular to subangular, <0.75" diameter); 50% well-graded medium- to coarse-grained sand; 15% fines; wet due to water injection; (35,50,15)										1447	
105	@ 105' - increase in fine to coarse gravel to 45% (angular to subrounded, <1" diameter); 40% well-graded medium- to coarse-grained sand; 15% fines; wet due to water injection; (45,40,15)										1450	
110	@ 110' - decrease in fine gravel to 35% (angular to subangular, <0.5" diameter); 40% well-graded fine- to coarse-grained sand; 25% fines; wet due to water injection; (35,40,25)										1457	
115	@ 115' - increase in fine to coarse gravel to 40% (angular to subrounded, <1" diameter); 40% well-graded fine- to coarse-grained sand (angular to subrounded); 20% fines; wet due to water injection; (40,40,20)										1504	From 116' - 136', rate of drilling is approximately 0.71 ft/min.
120												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
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DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 5 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL/GRAVELLY SAND (GW-SW): well-graded fine to coarse gravel (<1" diameter); (40,40,20)										1525	
125											1530	
130											1535	
135	@ 135' - wet due to water injection										1545	From 136' - 156', rate of drilling is approximately 0.71 ft/min.
140											1605	
145	@ 145' - 40% angular to subrounded well-graded fine- to coarse-grained sand; (40,40,20)										1611	
150												

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EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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BOREHOLE LOG

BORING PW-4 **SHEET** 6 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL/GRAVELLY SAND (GW-SW): decrease in gravel sizes to <0.5" diameter; (40,40,20)										1619	
155											1625	
160	Well-Graded GRAVEL with SAND (GW): olive [5Y 4/4]; gravel/cobble fragments (angular, <0.5" diameter); fines primarily coating gravel fragments; (60,35,5)										0725	Continuous injection of water into borehole to remove cuttings.
165												
170												
175	@ 175' - very angular gravel/cobble fragments											
180												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
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BOREHOLE LOG

BORING PW-4 **SHEET** 7 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded GRAVEL with SAND (GW): angular, fine to coarse gravel; (60,35,5)										1615	
185	@ 185' - gravel sizes <0.5" diameter (cobble fragments)										1620	
190											1645	
195	@ 195' - very large cobbles/boulders										1700	From 197' - 217', rate of drilling is approximately 0.59 ft/min.
200	SILTY SAND with GRAVEL (SW-SM): olive brown [2.5Y 4/3]; 25% fine gravel (angular to subangular fragments <0.5" diameter); 55% well-graded very fine- to coarse-grained sand; 20% fines; moist due to water injection; (25,60,15)										1120	
205											1125	
210												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
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BOREHOLE LOG

BORING PW-4 **SHEET** 8 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW-SM): 25% fine gravel (angular to subangular, <0.5" diameter); (25,60,15)										1130	
215											1142	
	Well-Graded GRAVEL (GW): grayish brown [2.5Y 5/2]; 80% gravel (angular cobble fragments, <0.75" diameter); 10% well-graded fine- to coarse-grained sand; 10% fines; dry; (80,10,10)										1150	From 217' - 237', rate of drilling is approximately 0.59 ft/min.
220	SILTY SAND with GRAVEL (SW-SM): olive brown [2.5Y 4/3]; 30% fine gravel (angular fragments, <0.5" diameter); 45% well-graded fine- to coarse-grained sand; 25% fines; moist due to water injection into borehole; (30,45,25)										1319	
225											1325	
230											1335	
235	@ 235' - decrease in gravels to 15% (angular to subangular, <0.25" diameter); 70% well-graded fine- and coarse-grained sand; 15% fines; damp due to water injection into borehole; (15,70,15)										1340	From 237' - 257', rate of drilling is approximately 1.05 ft/min.
240												

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DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
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BOREHOLE LOG

BORING PW-4 **SHEET** 9 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW-SM): 70% well-graded fine- to coarse-grained sand; (15,70,15)										1400	
245											1403	
250											1407	
255	@ 255' - color change to yellowish brown [10YR 5/4]										1410	From 257' - 277', rate of drilling is approximately 0.69 ft/min.
260											1425	
265	@ 265' - moist due to water injection into the borehole										1428	
270												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
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BOREHOLE LOG

BORING PW-4 **SHEET** 10 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW-SM): color change to olive brown [2.5Y 4/3]; (15,70,15)										1432	
275	@ 275' - decrease in gravel size to <0.1" diameter										1447	From 277' - 297', rate of drilling is approximately 1.25 ft/min.
280	@ 280' - color change to light olive brown [2.5Y 5/4]; 5% fine gravel (angular to subangular); 75% well-graded very fine- to fine- sand (angular to subangular); 20% fines; damp due to water injection; (5,75,20)										1500	
285											1505	
290											1509	
295	@ 295' - 10% fine gravel (angular, <0.5" diameter); 75% well-graded very fine- to medium-grained sand; 15% fines; dry;(10,75,15)										1512	
300												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
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BOREHOLE LOG

BORING PW-4 **SHEET** 11 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW-SM): color change to olive brown [2.5Y 4/4]; 10% fine gravel; 80% well-graded very fine- to medium-grained sand (angular to subangular); 20% fines; damp; (10,70,20)										1537	
305											1541	
310	@ 310' - 10% fine gravels (angular to subangular, <0.25" diameter); 55% well-graded very fine- to fine-grained sand; 35% fines; damp; (10,55,35)										1545	
315											1548	
320											1607	
325	@ 325' - damp due to water injection into the borehole										1610	
330												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
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BOREHOLE LOG

BORING PW-4 **SHEET** 12 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW-SM): 10% fine gravel (<0.25" diameter); (10,55,35)										1615	
335	@ 335' - 10% fine gravel; 55% well-graded angular to subangular fine- to coarse-grained sand; 35% fines; moist due to water injection; (10,55,35)										1625	
340											1240	
345	@345' - damp due to limited water injection into the borehole										1304	
350											1319	
355	@355' - angular to subangular sand grains; (10,55,35)										1325	From 357' - 377', rate of drilling is approximately 1.33 ft/min.
360												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
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BOREHOLE LOG

BORING PW-4 **SHEET** 13 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW-SM): 10% fine gravel (angular to subangular); (10,55,35)										1443	
365											1449	
370											1453	
375	@ 375' - color change to dark yellowish brown [10YR 4/6]; 5% fine gravel (angular to subangular, <0.25" diameter); 80% well-graded fine- to medium-grained sand; 15% fines; damp due to limited water injection; (5,80,15)										1522	
380											1553	
385	@ 385' - decreasing fines										1601	From 387' - 417', very difficult drilling/hammering (possible cemented zone).
390												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GEOSYNTEC CONSULTANTS
200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 14 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND (SW): light olive brown [2.5Y 5/3]; 10% fine gravel (angular, fragmented, <0.2" diameter); 85% fine- to coarse-grained sand (angular, fragmented); 5% fines; dry; (10,85,5)										1630	
395											1650	
400											0837	@ 400', terminated water injection into borehole.
405	@ 405' - dry										1145	
410											1322	
415	@ 415' - increasing fines										1335	
420												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 15 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND (SW): angular to subrounded fine gravel; (10,85,5)										0836	
425											0839	
	SANDY SILT/SILTY SAND (ML): dark yellowish brown [10YR 4/6]; 5% fine gravel (angular to subrounded, <0.15" diameter); 45% poorly graded fine sand; 50% fines; damp; (5,45,50)											
430											0854	
435	@ 435' - trace fine gravel; 40% poorly graded fine sand; 60% fines; damp; no unusual odors; (tr,40,60)										0900	
440	SANDY SILT with CLAY (ML-CL): dark yellowish brown [10YR 3/6]; trace fine gravel; 30% poorly graded fine-grained sand; 70% fines; low plasticity; damp; (tr,30,70)										0914	
445	SANDY SILT with CLAY (ML): yellowish brown [10YR 5/4]; trace fine gravel; 40% well-graded fine- to coarse-grained sand; 60% fines; damp; low plasticity; (tr,40,60)										0920	
450												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 16 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): olive brown [2.5Y 4/4]; 5% fine gravel (angular to subangular, <0.1" diameter); 85% well-graded fine- to coarse-grained sand; 10% fines; damp; (5,85,10)										0945	
455	@ 455' - trace fine gravel; 70% poorly graded fine-grained sand; 30% fines; moist; (tr,70,30)										0951	From 457' - 470', no free water encountered.
460	@ 460' - increase in fine gravel to 5% (angular to subangular, <0.15" diameter); 85% well-graded fine- to coarse-grained sand; 10% fines; moist; (5,85,10)										1000	
465	@ 465' - color change to light olive brown [2.5Y 5/6]; trace fine gravel; 85% poorly graded very fine-grained sand; 15% fines; moist; (tr,85,15)										1003	From 467' - 480', no free water encountered.
470	@ 470' - 5% fine gravel (angular to subangular, <0.2" diameter); 75% well-graded very fine- to coarse-grained sand; 20% fines; moist; (5,75,20)										1006	
475											1040	
480				@ 480', encountered first groundwater ▽								

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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Pasadena, California 91105
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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 17 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY GRAVEL/GRAVELLY SAND (GW-SW): olive brown [2.5Y 4/4]; 40% well-graded fine and coarse gravel (angular to subangular, <0.5" diameter); 35% well-graded fine- to coarse-grained sand; 25% fines; wet; (40,35,25)			Temporary well PW-4-T01-485 screened from 480' - 485'. Static water level measured at 460.3'. NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-4		PW-4-T01-485 (Groundwater Sample)					1049	
485	SILTY SAND/SANDY SILT (SM-ML): light olive brown [2.5Y 5/4]; 10% fine gravel (angular to subangular, < 0.2" diameter); 55% poorly graded fine sand; 35% fines; wet; (10,55,35) @ 486' - color change to dark yellowish brown [10YR 4/6]; trace coarse-grained sand and 40% very fine-grained sand; 60% fines; damp; no plasticity; (0,40,60)					PW-4-T01-487.5-GT (Soil Sample)		7-11-16	60		1315	From 486' - 487.5', drive soil sample PW-4T01-487.5-GT collected using a 325-lb hammer. From 487.5' - 526', borehole producing abundant water.
490	@ 490' - 30% fine and coarse gravel (angular to subangular, < 0.5" diameter); 30% well-graded fine- to coarse-grained sand (angular to subrounded); 40% fines; wet; (30,30,40)										0906	
495	SANDY GRAVEL/GRAVELLY SAND (GW-SW): light olive brown [2.5Y 5/4]; 40% fine and coarse gravel (angular to subangular, <0.5" diameter); 40% well-graded fine- to coarse-grained sand (angular to subrounded); 20% fines; wet; (40,40,20)										0915	
500	@ 500.5' - Well-Graded SAND with SILT (SW-SM): brown [10YR 4/6]; 90% poorly graded very fine sand; 10% fines; wet; (0,90,10) @ 501' - 5% fine gravel (angular to subangular, <0.75" diameter); 85% well-graded fine- to coarse-grained sand; 10% fines; wet; (5,85,10) @ 501.5' - SILTY CLAY (CL): olive [5Y 4/3]; high toughness, hard, dry							20-28-42	60		1049	@ 499', bottom of 11 3/4" diameter steel drive casing. Begin telescoping 9 5/8" diameter steel drive casing. From 500' - 501.5', drive soil sample collected using a 325-lb hammer.
505	SILTY SAND (SM): olive brown [2.5Y 4/4]; 10% fine and coarse gravel (angular to subangular, <1" diameter); 70% well-graded fine- to coarse-grained sand; 20% fines; wet; (10,70,20)										1508	
510												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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200 E. Del Mar Boulevard Suite 250
Pasadena, California 91105
Tel: (626) 449-0664 Fax: (626) 449-0411

GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 18 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): fine to coarse gravels <1" diameter; (10,70,20)										1510	
515				Temporary well PW-4-T02-525 screened from 520' - 525'. Static water level measured at 464.42'.							1512	From 516' - 526', borehole generating abundant water.
520				NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-4							1524	
						PW-4-T02-525 (Groundwater Sample)						
525	@ 525' - wet										1520	
						PW-4-T02-527.5-GT (Soil Sample)		7-30-44	40			From 526' - 541', borehole generating abundant water.
530											1033	
535	@ 535' - 20% fines (10,70,20)										1035	
540												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 19 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND (SM): wet; (10,70,20)										1047	@ 541', decreasing water production in borehole.
	SANDY SILT with CLAY (ML-CL): light olive brown [2.5Y 5/4]; 30% very fine-grained sand and trace medium-grained sand; 70% fines; wet; slow dilatancy; (0,30,70)											
545											1049	
550											1052	@ 552', no free water observed.
555	Well-Graded SAND (SW): olive brown [2.5Y 4/4]; 90% medium- to coarse-grained sand; 10% fines; moist; (0,90,10)										1100	From 556' - 576', borehole producing abundant water.
560	@ 560' - trace fine gravel (<0.2" diameter); 90% well-graded fine- to medium-grained sand; 10% fines; dry; (tr,90,10)										1115	
565	@ 565' - dry										1117	
570				@ 570', encountered groundwater								

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 20 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	Well-Graded SAND (SW): damp to moist; (tr,90,10)			Temporary well PW-4-T03-575 screened from 570' - 575'. Static water level measured at 567.90'. NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-4	PW-4-T03-575 (Groundwater Sample)						1127	
575	@ 575' - increase in fine to coarse gravel to 20% (angular to subangular, <1.25" diameter); 60% well-graded fine- to coarse-grained sand; 20% fines; damp to moist; (20,60,20)										1130	From 575'- 586', very difficult drilling.
580	CLAYEY SAND/SANDY CLAY (SC-CL): olive brown [2.5Y 4/3]; 20% fine and coarse gravel (angular to subrounded, <0.75" diameter); 35% well-graded fine- to coarse-grained sand; 35% fines; wet; no plasticity; slow dilatancy; (20,35,35)										0855	
	@ 582' - Well-Graded GRAVEL with SILTY SAND (GW-SM): olive brown [2.5Y 4/3]; 40% fine and coarse gravel (angular to subrounded, <1" diameter); 30% well-graded medium- to coarse-grained sand; 30% fines; wet; (40,30,30)											
585	SANDY SILT with CLAY (ML-CL): olive brown [2.5Y 4/4]; trace fine gravel; 30% poorly graded fine-grained sand; 70% fines (50% silt, 20% clay); wet; slow dilatancy; no plasticity; (tr,30,70)										0815	From 587' - 591', borehole producing abundant water.
590	SILTY SAND (SM): olive brown [2.5Y 4/4]; 70% poorly graded fine- to medium-grained sand (angular to subangular); 30% fines; wet; (0,70,30)										0840	From 591' - 596', very difficult drilling.
595	@ 595' - increase in sand grain size to poorly graded medium- to coarse-grained; wet; (tr,70,30)										0850	From 596' - 606', very difficult hammering/drilling.
600												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 21 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SANDY CLAY with SILT (SC-ML): light olive brown [2.5Y 5/6]; 50% poorly graded fine- to medium-grained sand; 50% fines; no plasticity; very moist to wet; (0,70,30)					PW-4-601.5-GT (Soil Sample)			40		1415	From 600' - 601.5', drive soil sample PW-4-601.5-GT collected using a 325-lb hammer.
605	SILTY SAND (SM): dark yellowish brown [10YR 4/6]; 70% well-graded fine- to coarse-grained sand; 30% fines; very moist; (0,70,30)										1515	
610				Temporary well PW-4-T04-617.5 screened from 612.5' - 617.5'. Static water level measured at 615.55'.							1519	
615						PW-4-T04-617.5 (Groundwater Sample)						1612	
620				Temporary well PW-4-T05-625 screened from 620' - 625'. Static water level measured at 567.9'. NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-4							1613	
625	SILTY SAND with GRAVEL (SW): light olive brown [2.5Y 5/4]; 35% fine and coarse gravel (angular to subrounded, <1.25" diameter); 40% well-graded fine- to coarse-grained sand; 25% fines (trace clay); very moist; (35,40,25)			@ 625', encountered groundwater		PW-4-T05-625 (Groundwater Sample)					1710	
630												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

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GS FORM: WELL BORE 12/03

BOREHOLE LOG

BORING PW-4 **SHEET** 22 **OF** 22
START DRILL DATE Jul 23, 04 **ELEVATION DATA:**
FINISH DRILL DATE Aug 25, 04 **GROUND SURF.** NA ft
LOCATION Rialto, CA **TOP OF CASING** 1626.56 ft
PROJECT 160-Acre Parcel, Rialto, CA **DATUM** NGVD-29
NUMBER HA0816

DEPTH (ft-bgs)	DESCRIPTION (1) Lithology (2) Color (3) Moisture (4) Grain Size (5) Content (%) (6) Plasticity (7) Hardness (8) Other (Staining, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER/ STRUCTURE	ELEVATION (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: BLOWS PER 6"	SAMPLES: RECOVERY (%)	SAMPLES: PID READING (ppm)	SAMPLES: TIME	COMMENTS (1) Rig (2) Odor (3) Air Monitoring
	SILTY SAND with GRAVEL (SW): decreasing gravels; (35,40,25)										1110	
635											1630	From 636' - 646', no free water observed.
640	@ 640' - decrease in gravel to 5%; 90% well-graded fine- to coarse-grained sand; 5% fines; very moist to wet			Temporary well PW-4-T06-647.5 screened from 642.5' - 647.5'. Static water level measured at 615.45'.							1645	@ 642', due to limited recovery of cuttings, injected water into borehole and resumed drilling.
645	@ 645' - becomes wet			NOTE: TEMPORARY WELL SHOWN, PLEASE REFER TO WELL CONSTRUCTION LOG FOR PERMANENT WELL PW-4	PW-4-T06-647.5 (Groundwater Sample)						1315	@ 645', borehole producing abundant water. @ 646', no free water observed; bottom of 9 5/8" diameter steel drive casing. Due to equipment problem encountered during permanent well installation, 9 5/8" diameter steel casing was removed from the borehole and mud drilling techniques were employed to total depth (with approval from USEPA). @ 648', very limited free water observed.
650	Boring terminated at a depth of 650'. Permanent well PW-4 and piezometer PW-4A was subsequently installed in the borehole. Refer to well construction log for monitoring well PW-4 and piezometer PA-4A.											
655												
660												

CONTRACTOR WDC Exploration & Wells **NORTHING** 1878655.92
EQUIPMENT Peterbilt SpeedStar 30K **EASTING** 6740248.93
DRILL MTHD Air Rotary Casing Hammer **COORDINATE SYSTEM:**
DIAMETER 13 3/8", 11 3/4", 9 5/8" NAD-83 Zone 5
LOGGER Phuong Ly **REVIEWER** Walt Grinyer, P.G.

NOTES:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE RIALTOHA0816_04_JH.GPJ GEOSNTEC.GDT 3/24/05

GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:05				Grab		0			GW	ALLUVIUM: Dark grayish brown (10YR 4/2), poorly sorted, subangular, medium to very coarse SANDY GRAVEL with minor SILT, COBBLES and BOULDERS.	Begin drilling with 9-5/8" drive pipe, 8-1/2" button bit. Dry cuttings. Cuttings slightly moist.
	1.05			Grab		10			SP	Grayish brown (10YR 5/2), moderately sorted, angular to rounded, medium to coarse SAND with minor SILT.	
9:24				Grab		20			GW	Grayish brown (10YR 4/2 to 5/2), poorly sorted, subangular to rounded, medium to very coarse SANDY GRAVEL with minor SILT, COBBLES and BOULDERS. ...(20') - less SAND than above.	
9:36	1.54			Grab		30			SM	Light olive brown (2.5Y 5/3), moderately sorted, subrounded, very fine to fine SILTY SAND with minor rounded granitic GRAVEL and trace coarse SAND. ...(27') - more coarse SAND and GRAVEL than above.	
9:49				Grab		40			SW	Dark grayish brown (10YR 4/2), poorly sorted, angular to subrounded, medium to very coarse, arkosic GRAVELLY SAND with GRAVEL.	
10:04	1.43			Grab		50			GW	Grayish brown (10YR 5/2), poorly sorted, angular to subangular SANDY GRAVEL with fine to coarse SAND and minor SILT.	
				Grab					SM	Poorly sorted, very fine to fine SILTY SAND with minor amounts of coarser SAND and small GRAVEL.	

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
	1.43					50			SM	...same as above.	
				Grab		55				...(55') - less SILT than above.	
10:18				Grab		60					
10:27				Grab		65				...(65') - more SAND, less SILT than above.	
	1.43			Grab		70				...(70') - abundant GRAVEL.	
				Grab		75				...(75') - less GRAVEL than above.	
10:41				Grab		80					
10:50				Grab		85			GW	Dark grayish brown (10YR 4/2), poorly sorted, subrounded SANDY GRAVEL with fine to coarse SAND and minor SILT.	
	0.74			Grab		90			SW	Grayish brown (10YR 5/2), poorly sorted, very fine to coarse SAND with trace amounts of SILT and GRAVEL.	
				Grab		95			GP	Light grayish brown (10YR 6/2), moderately well sorted, angular to subrounded SANDY GRAVEL with very fine to fine SILTY SAND and minor medium and coarse SAND.	
11:17				Grab		100			SW	Grayish brown (10YR 5/2), poorly sorted, angular to subrounded, fine to very coarse SAND with trace amounts of SILT and GRAVEL.	
11:26											

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11:26						100			SW	...some as above.	
				Grab		105			SM	Brown (10YR 4/3), poorly sorted, very fine to coarse, micaceous SILTY SAND with minor amounts of subangular GRAVEL.	
	0.95			Grab		110				...(110') - more SILT and CLAY than above.	
				Grab		115			ML	Brown (10YR 4/3), micaceous SANDY SILT with minor amounts of fine to coarse SAND and trace amounts of CLAY.	
11:47				Grab		120			SM	Brown (10YR 4/3), poorly sorted, very fine to coarse, micaceous SILTY SAND with minor GRAVEL.	
13:05				Grab		125					
	1.25			Grab		130			SW	Brown to dark yellowish brown (10YR 4/3 to 4/4), poorly sorted, very fine to coarse SAND with trace amounts of SILT and GRAVEL.	
				Grab		135			SM	Dark grayish brown (10YR 4/2), poorly sorted, fine to coarse SILTY SAND with minor GRAVEL.	
13:21				Grab		140			SW	Brown (10YR 4/3), poorly sorted, very fine to coarse SAND with trace amounts of SILT and GRAVEL.	
13:29				Grab		145				...(145') - color change to dark grayish brown (10YR 4/2).	
	1.82			Grab		150			SM	Brown (10YR 4/3), moderately sorted, very fine to fine SILTY SAND with minor medium and coarse SAND and GRAVEL.	

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505 feet

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
	1.82					150			SM	...same as above.	
				Grab		155			SW	Brown (10YR 5/3), poorly sorted, angular to subrounded, very fine to coarse SAND with minor SILT, GRAVEL and COBBLES.	
13:40				Grab		160					
13:49									SM	Dark yellowish brown (10YR 4/4), poorly sorted, fine to coarse SILTY SAND with abundant angular to subangular GRAVEL and trace amounts of CLAY.	
				Grab		165					
	1.25			Grab		170					
									SW	Brown to dark yellowish brown (10YR 4/3 to 4/4), poorly sorted, angular to subrounded, very fine to very coarse SAND with minor SILT and trace amounts of GRAVEL.	
				Grab		175					
14:05				Grab		180				...(180') - more GRAVEL than above.	
14:15									GW	Granitic and schistose GRAVEL, COBBLES, and BOULDERS interbedded with brown (10YR 4/3), fine to medium SILTY SAND and trace amounts of CLAY.	
				Grab		185					
	0.67			Grab		190					
						195					
14:45				Grab							
15:30	0.14					200					
15:44											
16:12											Extremely hard drilling.

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
15:30						200			GW	...same as above.	
15:44	0.14										
16:12											Extremely hard drilling.
	0.19			Grab		205					
16:38										...(206') - 2-foot thick lens with more COBBLES and BOULDERS than above.	
1652 12/14	0.05										
8/07 9:25	0.20			Grab		210					
9:35											
15:05											
				Grab		215					
	0.43										
				Grab		220				...(220') - unit is fining with depth, less GRAVEL and COBBLES than above.	Driller misting water to improve cuttings retur
15:40				Grab							
15:50						225					
				Grab		230			SW	Yellowish brown (10YR 5/4), poorly sorted, very fine to coarse SAND with SILT and GRAVEL.	
	1.43			Grab		235				...(234') - less SILT than above.	
				Grab		240			SM	Yellowish brown (10YR 5/4), moderately sorted, very fine to fine SILTY SAND with trace amounts of medium and coarse SAND.	
16:04				Grab		245			SP	Yellowish brown (10YR 5/4), well sorted, fine SAND with trace amounts of medium and coarse SAND.	
16:14									GW	Yellowish brown (10YR 5/4), poorly sorted, angular to subangular SANDY GRAVEL with medium to coarse SAND and minor COBBLES.	
				Grab		250					Driller misting water to improve cuttings return.
	1.43										

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						250			GW	...same as above.	Driller misting water to improve cuttings return.
	1.43									...(252') - unit fining with depth, fewer COBBLES than above.	
				Grab		255			SW	Dark yellowish brown to yellowish brown (10YR 4/4 to 5/4), poorly sorted, angular to subangular, very fine to coarse, arkosic SAND with minor SILT and GRAVEL.	
				Grab		260					
16:28				Grab							
16:35						265				...(267') - abundant GRAVEL with COBBLES.	
				Grab		270					
	1.67			Grab		275					
				Grab		280				...(278') - less GRAVEL and fewer COBBLES than above.	
16:47				Grab							
16:58						285					
				Grab		290				...(291') - more GRAVEL and COBBLES than above.	
	1.54			Grab		295					
				Grab		300					

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						300			SW	...same as above.	
17:11				Grab		305				...(304') - sand predominantly is fine to medium, little to no coarse SAND.	
18:07				Grab		310				...(310') - sand becomes fine to coarse, abundant COBBLES.	
	2.22			Grab		315			SM	Reddish brown (5YR 4/4), very fine to fine SILTY SAND with minor amounts of medium and coarse SAND and GRAVEL.	
				Grab		320				...(320') - more medium and coarse SAND than above.	
18:16				Grab		325					
18:24				Grab		330			SW	Yellowish brown (10YR 5/4), poorly sorted, fine to coarse SAND with minor amounts of SILT and GRAVEL.	
	2.50			Grab		335					
				Grab		340				...(340') - more GRAVEL/COBBLES and less SAND than above.	
18:32				Grab		345					
18:40				Grab		350				...(346') - more coarse SAND than above.	
	2.86										

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505 feet

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						350			SW	...same as above.	
	2.86			Grab		355			ML	Dark yellowish brown (10YR 4/4), moderately well sorted, very fine SANDY SILT with minor medium and coarse SAND.	
									SM	Yellowish brown (10YR 5/4), poorly sorted, fine to coarse SILTY SAND with minor GRAVEL.	
				Grab		360					
18:47				Grab							
18:53						365					
	2.50			Grab		370				...(370') - little to no coarse SAND or GRAVEL.	No water detected in boring.
18:57				Grab						...(374') - unit is coarsening with depth, more medium and coarse SAND than above.	
8/08 7:32						375					
	1.67			Grab		380			SW	Yellowish brown (10YR 5/4), poorly sorted, angular to subangular, fine to coarse, arkosic GRAVELLY SAND with abundant COBBLES and minor amounts of SILT. ...(382') - more SILT than above.	Dry cuttings.
7:38				Grab		385			SM	Brown to dark yellowish brown (10YR 4/3 to 4/4), poorly sorted, fine to coarse SILTY SAND with abundant GRAVEL and COBBLES. ...(388') - more SILT and CLAY than above.	No water detected in boring.
8:32	1.43			Grab		390			SW	Yellowish brown (10YR 5/4), poorly sorted, angular to subangular, fine to coarse, arkosic GRAVELLY SAND with abundant COBBLES and minor amounts of SILT.	Moist cuttings.
8:39				Grab							
12:25				2.5	N1-1D	395			SM	Yellowish brown (10YR 5/4), poorly sorted, fine to coarse, micaceous SILTY SAND with GRAVEL, minor COBBLES and trace amounts of CLAY.	...(395') - obtain downhole soil sample N1-1D.
	2.00			Grab		400					

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						400			SM	...same as above.	
12:29											
12:35											Air off at 12:33.
	1.00	OPEN BOREHOLE SAMPLE		Grab		405			SC	Dark yellowish brown (10YR 4/6), poorly sorted, subangular to subrounded, fine to coarse CLAYEY SAND with rounded GRAVEL up to 1 inch in diameter and abundant fine SAND.	
12:38											Air off at 12:40.
13:27											No water detected in boring at 13:15.
	0.75			Grab		410			CL	Brown (7.5YR 4/4), moderately sorted SANDY CLAY with subangular fine and medium SAND.	
13:35							1st				Damp cuttings returned, but no free water.
13:52							2nd				No free water.
	1.33	N1-1		Grab		415			SW	Dark yellowish brown (10YR 4/4), poorly sorted, fine to coarse GRAVELLY SAND with rounded GRAVEL up to 3 inches in diameter and minor SILT.	Damp cuttings returned at 415'.
13:58				Grab							First SWL=411.90' bgs at 15:10.
8/09 7.29						420					...(420') - obtain a soil sample N1-20.
	3.33			Grab 2.5	N1-2D	425					
7:32				Grab					SM	Yellowish brown (10YR 5/4), poorly sorted, fine to coarse, micaceous SILTY SAND with minor CLAY and GRAVEL.	
8:08		N1-2		Grab		430					
						435					
	2.22			Grab		440					
				Grab		445			GW/SW	Yellowish brown (10YR 5/4), poorly sorted, angular to subangular, granitic and schistosic GRAVELLY SAND to SANDY GRAVEL with minor SILT and COBBLES.	Second SWL=412.50' bgs at 9:53.
8:17				Grab							
9/12 8:09				2.5	N1-2	450					

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505 feet

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8/12 8:09				2.5	N1-2	450			GW/SW	...same as above.	
				Grab		455				...(455') - abundant COBBLES.	
	1.11			Grab		460				...(460') - fewer COBBLES than above.	
				Grab		465					
8:27				Grab		470			SM/ML	Yellowish brown (10YR 5/4), poorly sorted, fine to coarse SILTY SAND to SANDY SILT with minor CLAY, coarse SAND and GRAVEL.	
8:52				Grab		475					Little to no free water or cuttings returned.
	2.14			Grab		480				...(477') - more SILT and CLAY than above.	Driller misting water to improve cuttings return.
8:59				Grab		485				...(482') - less fines than above.	
9:34	1.00										
9:39				Grab		490					
10:16		N1-3									
	1.67			Grab		495	3rd ▼			...(497') - 12-inch lens with abundant SAND and GRAVEL.	
10:22				Grab		500					
11:40											Third SWL=495.5' bgs at 16:15, in the aquitard.

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GeoLogic Associates
Boring Log

BORING NO.: N-1

JOB NO.: 2002-054
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. FINEGAN, CHG

DATE STARTED: 8/06/02
DATE FINISHED: 8/12/02
ELEVATION: 1570.52 feet
NORTHING: 1875630.26
EASTING: 6739915.01

GW DEPTH: Variable
TOTAL DEPTH: 505 '

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
11:40 11:45	1.00			2.5 Grab	N1-3	500 505			SM/ML	...same as above.	Third SWL=495.5' bgs at 16:15, in the aquitard.

Notes:

1. Total depth of boring 505 feet.
2. Groundwater first encountered at 415' below ground surface (bgs), static recovery measured at 411.90' bgs.
3. Second (confined) groundwater encountered at 442' bgs, static recovery measured at 412.50' bgs.
4. Third (confined) groundwater encountered in aquitard at bottom of boring, static recovery measured at 495.5' bgs.
5. 2-inch piezometer installed in boring, screened from 496' to 501' bgs.
6. 4-inch monitoring well installed in boring, screened from 395' to 425' bgs.

GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 feet

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
16:35				Grab		0			GM	FILL: Very dark grayish brown to dark olive brown (2.5Y 3/2 to 3/3), fine to medium, moderately sorted SILTY GRAVEL with schistose and granitic GRAVEL.	11-3/4" drive casing, 10-5/8" tri-cone button bit.
						5			GW	ALLUVIUM: Olive brown (2.5Y 4/3 to 4/4), fine to coarse, poorly sorted SANDY GRAVEL with occasional schistose and igneous COBBLES and abundant fine to coarse arkosic SAND.	
	0.57			Grab		10					
				Grab		15				...(12'-16') - decreasing amounts of fine SAND.	
17:10				Grab		20					
5/13 7:58				Grab		25			SW	Olive (5Y 4/3 to 4/4), fine to medium, poorly sorted, subangular GRAVELLY SAND with abundant schistose and igneous GRAVEL and QUARTZ to arkosic SAND.	
	0.43			Grab		30				...(29') - more GRAVEL than above.	
				Grab		35			GW	Olive gray to olive (5Y 4/2 to 4/3), poorly sorted, medium to coarse SANDY GRAVEL with minor coarse SAND and scattered COBBLES, abundant rock flour and small fragments of larger COBBLES.	...(31') - misted water.
8:45				Grab		40					
9:15				Grab		45				...(41') - small lens of fine to medium SAND, minor COARSE SAND.	
	0.29			Grab		50				...(49'-51') - olive (5Y 4/3 to 4/4), poorly sorted, fine to coarse, subrounded SAND lens.	

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GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 '

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
	0.29			Grab		50			GW	...same as above.	
						55				...(56'-60') - larger GRAVEL and abundant COBBLES.	...(56'-60') - rig jumpy.
10:23				Grab		60					
10:45									SW	Dark yellowish brown to olive brown (10YR to 2.5Y 4/4), poorly sorted, fine to coarse, subrounded GRAVELLY SAND with abundant small igneous and metamorphic GRAVEL and scattered COBBLES.	
				Grab		65					
	0.24			Grab		70					
				Grab		75				...(76') - increasing COBBLES and GRAVEL.	
12:08				Grab					GW	Dark yellowish brown (10YR 4/4), poorly sorted, small to large SANDY GRAVEL with abundant COBBLES and varying amounts of fine to coarse SAND.	
13:45						80					
				Grab		85					
	0.67			Grab		90				...(90') - more medium SAND than above, fewer large GRAVEL clasts.	
				Grab		95			SW	Dark yellowish brown (10YR 4/4 to 4/6), poorly sorted, fine to coarse, subangular GRAVELLY SAND with occasional subrounded, metamorphic and igneous GRAVEL and small mineral fragments.	
14:15				Grab		100					
14:24											

CONTINUED ON NEXT PAGE

GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
14:24						100			SW	...same as above.	
				Grab		105				...(105') - more coarse SAND and GRAVEL than above.	
	0.71			Grab		110				...(110') - fewer COBBLE fragments than above.	
				Grab		115					
14:52				Grab							
15:08						120				...(120') - large COBBLE fragments and GRAVEL more abundant.	
				Grab		125					
	0.54			Grab		130			GW	Light olive brown (2.5Y 5/4), poorly sorted, fine to coarse SANDY GRAVEL with abundant PEBBLE GRAVEL, very COARSE SAND and few scattered COBBLES.	
				Grab		135				...(135') - predominantly fine to medium SAND lens.	
15:45				Grab							
16:02						140				...(140') - abundant very COARSE SAND and small GRAVEL, traces of SILT at end of run.	
				Grab		145				...(145') - abundant coarse to medium SAND.	
	0.47			Grab		150			SW	Light olive brown (2.5Y 5/4), poorly sorted, fine to coarse, subrounded GRAVELLY SAND with lenses of GRAVEL.	

CONTINUED ON NEXT PAGE

GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
	0.47					150			SW	...same as above.	
				Grab		155				...(155') - more uniformly medium SAND.	
16:45				Grab		160				...(160') - more fines than above.	...(160') - misting water.
5/14 7:45				Grab		165					
	0.44			Grab		170				...(168'-170') - minor fines, mostly medium to coarse SAND.	
				Grab		175				...(175') - same as above.	
8:30				Grab		180				...(178') - coarser grained, more GRAVEL, less SAND than above.	...(178') - rig jumpy.
8:47				Grab		185			GW-SW	Yellowish brown to dark yellowish brown (10YR 5/6 to 4/6), poorly sorted, fine to coarse, subangular SANDY GRAVEL to GRAVELLY SAND with fine to medium SAND and angular COBBLE and GRAVEL fragments.	
	0.44			Grab		190					
				Grab		195				...(195') - more fine SAND than above.	
9:32				Grab		200					...(198') - harder drilling, rig jumpy.
9:40									GW	Light olive brown (2.5Y 5/4), poorly sorted fine to coarse SANDY GRAVEL with minor amounts of SAND and scattered COBBLES.	...(200') - drilling open-hole.

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:40						200			GW	...(200'-235') - predominantly COBBLES and GRAVEL with minor fine SAND.	...(200') - drilling open-hole.
				Grab		205					
	0.67			Grab		210					
				Grab		215					...(215'-235') - poor cuttings return.
10:10				Grab		220					
10:14				Grab		225					
	0.25			Grab		230					
11:15				Grab		235					...(234') - telescope with 9-5/8" drive casing.
5/15 8:20	0.40			Grab		240				...(240') - abundant GRAVEL and COBBLE fragments.	
8:40											
9:13				Grab		245				...(243') - more fine to medium SAND than above.	
	0.69					250					

CONTINUED ON NEXT PAGE

GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						250			GW	...same as above.	
	0.69			Grab		255			SW	Dark yellowish brown (10YR 4/4), poorly sorted, fine to coarse, subrounded GRAVELLY SAND with small, subangular GRAVEL.	
9:42						260					
9:53				Grab		265				...(265') - more fine SAND than above, some SILT.	
				Grab		270				...(270') - more medium SAND and large GRAVEL than above.	
	0.74			Grab		275				...(275'-280') - less medium SAND, more fine SAND than above, minor SILT.	
10:20				Grab		280					
10:34				Grab		285				...(285') - abundant coarse SAND and small to medium GRAVEL.	
				Grab		290				...(290'-295') - little medium SAND, abundant fine SAND and PEBBLE GRAVEL, some COBBLE fragments.	
	0.83			Grab		295					
				Grab		300				...(300') - abundant fine to medium SAND, few GRAVEL clasts.	
10:58											

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:58						300			SW	...(300') - abundant fine to medium SAND, few GRAVEL clasts.	
11:05				Grab		305				...(305'-310') - abundant fine SAND, minor SILT, minor PEBBLE GRAVEL.	
				Grab		310					
	0.67			Grab		315			GW	Light olive brown to olive brown (2.5Y 5/3 to 4/3), poorly sorted, fine to coarse, subangular SANDY GRAVEL with abundant coarse SAND and PEBBLE GRAVEL and tabular schistose COBBLE fragments.	
11:35				Grab		320					
12:59				Grab		325					
				Grab		330			SW	Dark yellowish brown (10YR 4/4 to 4/6), moderately sorted, fine to medium GRAVELLY SAND with minor SILT and trace PEBBLE GRAVEL.	
	0.85			Grab		335			SM	Dark yellowish brown (10YR 4/4 to 4/6), moderately sorted, very fine to fine SILTY SAND with trace CLAY and minor fine to medium SAND. ...(334') - minor CLAY, abundant fines.	
				Grab		340				...(340'-345') - less CLAY, more SILT and fine SAND than above.	
13:25				Grab		345			SW	Dark yellowish brown (10YR 4/6), moderately sorted, fine to medium GRAVELLY SAND with minor SILT and trace PEBBLE GRAVEL.	
15:23				2.5	N6D-1						...(345') - collect undisturbed soil sample N6D-1 at 14:25.
				Grab		350					
	0.77										

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GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						350			SW	...some as above.	
	0.77			Grab		355				...(355') - less SILT than above, more fine to medium SAND.	
				Grab		360				...(360') - slightly more PEBBLE GRAVEL than above. ...(358'-367') - color change, more fine to medium SAND than above.	
15:49				Grab							
5/16 8:08				2.5	N6D-2	365					...(365') - collect undisturbed soil sample N6D-2 at 16:45.
				Grab		370				...(370') - slightly more SILT than above.	
	1.18			Grab		375				...(372'-385') - increase in PEBBLE GRAVEL and coarse SAND.	...(375') - rig bouncing.
				Grab		380					
8:25				Grab							
8:35						385					
				Grab		390					
	0.40			Grab		395				...(395') - few GRAVEL clasts. ...(390'-400') - decreasing coarse fraction.	
				Grab		400				...(400'-405') - fewer PEBBLE GRAVEL, slight SILT increase.	...(400') - cuttings dry, dusty.

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GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 feet

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						400			SW	...(400'-405') - fewer PEBBLE GRAVEL, slight SILT increase.	...(400') - cuttings dry, dusty.
9:25				Grab		405					
10:58									SM-ML	Dark yellowish brown to yellowish brown (10YR 4/6 to 5/6), well sorted, fine SILTY SAND to SANDY SILT.	...(405'-425') - no water during drilling.
		N6-1		Grab		410	3rd 1st 2nd				...(410') - collected water sample N6-1 from open hole at 14:15. First SWL=410.50' bgs.
	0.91			Grab		415			SW	Dark yellowish brown to yellowish brown (10YR 4/4 to 5/4), fine to coarse, poorly sorted, subangular GRAVELLY SAND with trace SILT and minor PEBBLE GRAVEL.	
				Grab		420					
11:20				Grab		425			ML	Dark yellowish brown (10YR 4/4 to 4/60), well sorted, fine SANDY SILT.	
15:52									SW	Dark yellowish brown (10YR 4/4), poorly sorted, fine to coarse, subangular GRAVELLY SAND with minor PEBBLE GRAVEL.	
				Grab		430					...(428') - collect water sample N6-2 from temporary well at 12:20. Second SWL=410.85' bgs.
		N6-2									
	1.82			Grab		435			SM-SC	Light olive brown (2.5Y 5/4), poorly sorted, fine to coarse SILTY SAND to CLAYEY SAND with trace PEBBLE GRAVEL and abundant fines.	...(435') - cuttings saturated.
				Grab		440			GW	Light olive brown (2/5Y 5/4), poorly sorted, medium to very coarse, subangular SANDY GRAVEL with abundant PEBBLE GRAVEL and minor amounts of medium to coarse SAND.	...(440') - collect water sample N6-3 from temporary well at 14:30. Third SWL=410.50' bgs on 5/20/03.
16:03				Grab							
5/20 15:49		N6-3				445					...(447') - abundant free water.
	1.43			Grab		450				...(450') - GRAVEL less abundant, more coarse SAND.	

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GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						450			GW	...(450') - GRAVEL less abundant, more coarse SAND.	
	1.43			Grab		455				...(455') - trace CLAY.	
									SC	Strong brown (7.5YR 5/6), fine to medium, moderately sorted CLAYEY SAND with abundant SILT.	...(457') - easier drilling.
				Grab		460					
16:03				Grab							
5/22 7:50						465	4th ▼		GW	Yellowish brown (10YR 5/4 to 5/6), poorly sorted, coarse SANDY GRAVVEL with mior medium SAND, igneous and metamorphic (some weathered) GRAVEL, few COBBLES and trace CLAY.	
				Grab		470					...(470') - collect w sample N6-4 from op... hole at 8:00. Fourth SWL=467.25' bgs on 5/22/03.
	0.43								SC	Strong brown (7.5YR 5/6), poorly sorted, fine to coarse CLAYEY SAND.	
		OPEN BOREHOLE SAMPLE		Grab		475					
		N6-4							SM	Dark yellowish brown (10YR 4/4), fine to coarse, poorly sorted SILTY SAND with occasional coarse SANDY lens and trace GRAVEL.	
8:25											
10:03						480					
	0.29										
10:20				Grab							
10:37						485				...(485'-497') - coarser lens with decreased SILT and more COARSE SAND than above, trace GRAVEL.	...(485'-500') - mist water.
				Grab		490					
	0.54			Grab		495				...(495'-500') - loss of GRAVEL and COARSE SAND, more fines than above.	...(495') - little free water.
				Grab		500				...(500') - increase in SILT, minor CLAY, decreasing COARSE SAND and minor GRAVEL.	

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GeoLogic Associates
Boring Log

BORING NO.: N-6

JOB NO.: 2002-092
SITE LOCATION: MID-VALLEY SANITARY LANDFILL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: E. WHITE

DATE STARTED: 5/12/03
DATE FINISHED: 5/23/03
ELEVATION: 1539.00 feet
NORTHING: 1874309.93
EASTING: 6740360.51

GW DEPTH: Variable
TOTAL DEPTH: 545 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
		Seal to 433'				500			SM	...(500') - increase in SILT, minor CLAY, decreasing COARSE SAND and minor GRAVEL.	
8:58				Grab					SC	Strong brown (7.5Y 4/6 to 5/6), poorly sorted, fine to coarse CLAYEY SAND with abundant SILT and minor igneous and metamorphic GRAVEL.	
9:31	0.83			Grab		505					...(507') - minor free water.
						510					...(512'-520') - poor cuttings return.
				Grab			5th ▼				
						515					
						520			SW	Yellowish brown to dark yellowish brown (10YR 5/4 to 4/4), fine to coarse, poorly sorted, subangular GRAVELLY SAND with weathered schistose GRAVEL, igneous GRAVEL and abundant COARSE SAND.	
	2.00			Grab		525					...(525') - free water.
										...(530') - more fine to medium SAND than above.	...(530') - collect water sample N6-5 from temporary well at 15:00. Fifth SWL=514.0' bgs on 5/27/03.
				Grab		530				...(535'-545') - scattered coarse GRAVEL lenses.	
		N6-5		Grab		535					
						540					
				Grab							
9:36						545					
						550					

Notes:

1. Total depth of boring 545 feet.
2. Caving occured from 545' to 537'.
3. First groundwater measured at 410.50' below ground surface (bgs).
4. Second (confined) groundwater measured at 410.70' bgs and sampled in temporary well (427'-432').
5. Third (confined) groundwater measured at 410.85' bgs and sampled in temporary well (442'-445').
6. Fourth (confined) groundwater measured at 467.25' bgs and sampled in open borehole.
7. Fifth (confined) groundwater measured at 514' bgs and sampled in temporary well (524'-534').
8. 2-inch piezometer installed in boring, screened from 524' to 534' bgs. Borehole caved in from 545' to 521' during piezometer construction.
9. 4-inch monitoring well installed in boring, screened from 427' to 432' bgs and from 412' to 422' bgs.

GeoLogic Associates

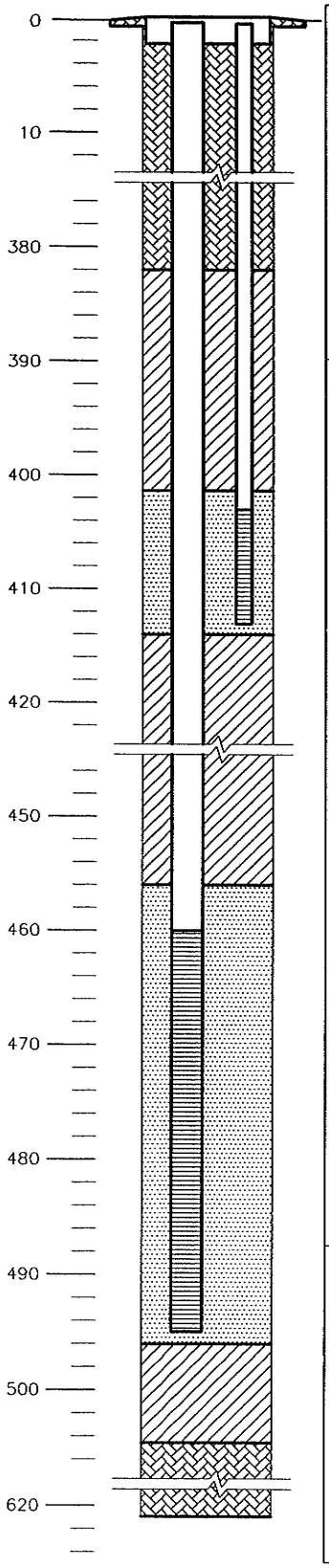
MONITORING WELL COMPLETION SUMMARY

WELL NO.: **N-11**

PAGE: 1 OF 1

JOB NO.: 2004-056
PROJECT: MID-VALLEY SANITARY LANDFILL PERCHLORATE INVESTIGATION
LOCATION: LINDEN AVENUE, NEAR MVSL
INSPECTOR: J. SAPP
CHECKED BY: M. REASON, CHG

ELEVATION GROUND LEVEL: 1460.62'
ELEVATION TOP OF CASING: 1460.35' (4"), 1460.26' (2")
DATE STARTED: 4/26/04
DATE FINISHED: 5/13/04
TOTAL DEPTH: 495' (4"), 413 (2")



DRILLING SUMMARY:

Total Depth: 621 feet
Borehole diameter: 12" (0-200'), 10" (200'-621')
Driller: WDC EXPLORATION AND WELLS

Rig: SPEEDSTAR 30K
Bit(s): TRI-CONE BUTTON TOOTH

Drilling Fluid: AIR / MISTED WATER

Protective Casing: 11-3/4" DRIVE CASING TO 200', 9-5/8" DRIVE CASING TO 615'

WELL CONSTRUCTION DETAILS:

Casing: Virgin, factory-sealed, flush threaded, Schedule 80 PVC. (4" ϕ from 0.27 to 460 feet, 2" ϕ from 0.36 to 403 feet.)

Screen: Virgin, factory-sealed, flush threaded, Schedule 80 PVC with 0.020-inch slots. (4" ϕ from 460 to 495 feet, 2" ϕ from 403 to 413 feet.)

Filter Pack: Washed and graded, commercial #3 Monterey-type sand. (From 401.5 to 414 feet and from 456 to 496 feet.)

Bentonite Seal: "Pure Gold" medium-sized chips by CETCO. (From 382 to 401.5 feet, from 414 to 456 feet and from 496 to 504.5 feet.)

Grout Seal: Neat, type II/V Portland cement grout with 4% bentonite by weight. (From 0 to 382 feet and from 504.5 to 621 feet.)

WELL CONSTRUCTION LOG:

	Start Date	Start Time	Finish Date	Finish Time
Drilling:	4/26/04	10:30	5/05/04	15:50
Casing Install:				
4" Well -	5/10/04	9:35	5/10/04	10:30
2" Piezometer -	5/11/04	10:30	5/11/04	11:00
Filter Placement:				
4" Well -	5/10/04	11:00	5/10/04	16:50
2" Piezometer -	5/11/04	11:10	5/11/04	13:00
Bentonite Placement:				
Lower -	5/07/04	14:00	5/07/04	15:15
Intermediate -	5/11/04	7:30	5/11/04	9:55
Upper -	5/11/04	13:10	5/11/04	16:00
Grout Placement:				
Lower -	5/06/04	10:40	5/06/04	11:30
Upper -	5/11/04	17:10	5/13/04	16:00

WELL DEVELOPMENT LOG:

		Date	Start Time	Finish Time
Predevelopment SWAB	4"	5/10/04	16:20	16:50
	2"	5/11/04	12:45	13:00
4" Well Bailing		5/14/04	AM	PM
4" Well Pumping		5/18/04	10:45	12:30

Total Gallons Removed: 590

STABILIZATION TEST DATA:

Gallons	pH	Spec. Cond. (µs/cm)	Temp (°F)
270	7.79	350	69.6
340	7.75	350	69.6
390	7.76	344	68.4
485	7.72	347	68.7
580	7.73	353	69.8

Comments:

Surface completion - Christy box to grade.
Development pumping at 4.75 gpm.

WELL MONITORING DATA:

Date	Time	Description	Corr.	Depth (feet)	SWL (fbgs)	By
5/14/04	11:00	2" piezometer prior to development	+0.36	388.26	388.62	MWV
5/14/04	11:05	4" well prior to bailing	+0.27	438.91	439.18	MWV
5/18/04	10:00	4" well prior to pumping	+0.27	449.24	449.51	JAS

GeoLogic Associates
Boring Log

BORING NO.: N-11

JOB NO.: 2004-056
SITE LOCATION: LINDEN AVENUE, NEAR MVSL
DRILLING METHOD: AIR ROTARY CASING HAMMER
CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 4/26/04
DATE FINISHED: 5/06/04
ELEVATION: 1460.62
NORTHING: 1871459.66
EASTING: 6742904.48

GW DEPTH: Variable
TOTAL DEPTH: 621 feet

TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:30						0			SW	ALLUVIUM: Light yellowish brown (2.5Y5/4), poorly sorted, subangular, very fine to very coarse SAND to GRAVELLY SAND with minor GRAVEL and trace SILT.	11-3/4" drive pipe, 10-5/8" tri-cone bit. Dry.
				Grab		5					
				Grab		10				...(9') - color change to brown (7.5YR4/3); increase in GRAVEL content.	...(9') - moist cuttings.
				Grab		15				...(14') - color change to light yellowish brown (2.5Y6/3).	
				Grab		20					
				Grab		25				...(23') - color change to brown (10YR5/3).	
				Grab		30					
				Grab		35				...(35') - color change to grayish brown (2.5Y5/2).	
				Grab		40				...(41') - slight increase in SILT.	
				Grab		45					
				Grab		50					

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GeoLogic Associates
Boring Log

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TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						50			SW	...same as above.	
				Grab		55					
				Grab		60					...(58') – bit drills jumpy. ...(60') – easier drilling.
				Grab		65				...(63') – slight increase in SILT.	
				Grab		70				...(66') – color change to light brownish gray (2.5Y6/2).	
				Grab		75				...(73') – color change to grayish brown (2.5Y5/2).	
				Grab		80			SM	Grayish brown (2.5Y5/2), poorly sorted, very fine to very coarse SILTY SAND with minor fine to medium GRAVEL.	
				Grab		85					
				Grab		90					
				Grab		95				...(93') – color change to light brownish gray (2.5Y6/2).	
				Grab		100					

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TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						100			SM	...same as above.	
				Grab		105				...(106') - gradual increase in SILT.	
				Grab		110					
				Grab		115					...(115') - bit drills jumpy.
15:30											
4/27 7:05				Grab		120				...(119') - color change to grayish brown (10YR5/2).	...(119') - lost circulation.
	0.18										
7:45				Grab		125				...(124') - decrease in GRAVEL size to fine.	...(123') - bit drills jumpy.
9:15											
				Grab		130					
	0.18										
				Grab		135				...(135') - color change to light brownish gray (10YR6'/2).	
10:20											
11:00				Grab		140			SW	Brown (7.5YR4/3), poorly sorted, subangular, very fine to very coarse GRAVELLY SAND with fine to medium GRAVEL clasts and trace amounts of SILT.	
				Grab		145					
	0.44			Grab		150					

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Boring Log

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11:45				Grab		150			SW	...same as above.	
4/28 7:15				Grab		155					...(158') - easy drilling.
	0.57			Grab		160				...(160') - grain size increase to medium to very coarse SAND.	
				Grab		165					
7:50				Grab		170				...(173') - less GRAVEL than above.	
7:58				Grab		175			SW/ GW	Grayish brown (10YR5/2), poorly sorted, GRAVELLY SAND to SANDY GRAVEL with abundant fine to coarse SAND and fine to medium, subangular GRAVEL.	...(177') - bit drills jumpy.
	1.18			Grab		180					
				Grab		185				...(187'-194') - less GRAVEL than above.	
8:15				Grab		190					
8:26				Grab		195				...(196') - color change to light brownish gray (10YR6/2).	
	0.75					200					...(200') - telescope with 9-5/8" drive pipe, open-hole drilled to 220'.

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Boring Log

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TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						200			SW/ GW	...same as above.	...(200') - telescope with 9-5/8" drive pipe, open-hole drilled to 220'.
	0.75			Grab		205				...(205') - more GRAVEL than above.	...(205') - bit drills jumpy.
8:42				Grab		210					
12:22	0.73			Grab		215					
12:33											
13:02				Grab		220				...(218') - more GRAVEL and COBBLES than above.	
				Grab		225					
	1.54			Grab		230				...(232') - less GRAVEL than above.	
				Grab		235			SW	Yellowish brown (10YR5/4), poorly sorted, fine to coarse GRAVELLY SAND with minor fine to medium GRAVEL.	
13:15											
13:25				Grab		240					
				Grab		245					
	1.33									...(248') - color change to brown (10YR4/4).	
				Grab		250					

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13:40				Grab		250			SW	...same as above.	
						255				...(254') - color change to brown (10YR5/3).	
13:47				Grab		260					
				Grab		265					
	1.82			Grab		270				...(271') - less GRAVEL than above.	
13:58				Grab		275					
14:08				Grab		280					
				Grab		285			GW/SW	Grayish brown (10YR5/2), poorly sorted, fine to medium GRAVELLY SAND to SANDY GRAVEL with abundant fine to very coarse SAND.	
	2.00			Grab		290					
14:18				Grab		295					
14:27				Grab		300					

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Boring Log

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LOGGED BY: J. CZAJKOWSKI

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TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						300			GW/SW	...same as above.	
				Grab		305			GW	Brown (10YR5/3), poorly sorted, fine to coarse SANDY GRAVEL with abundant medium to coarse SAND.	
	1.11			Grab		310				...(309') - color change to grayish brown (10YR5/2).	
14:45				Grab		315			SC	Brown (7.5YR4/4), moderately sorted, very fine to coarse CLAYEY SAND with minor fine to medium GRAVEL and SILT.	...(314') - moist cuttings.
14:55				Grab		320				...(318' - 322') - increase in SILT fraction, trace GRAVEL. ...(320') - less coarse SAND than above.	
	1.00			Grab		325					
				Grab		330					
15:15				Grab		335				...(333') - less GRAVEL than above.	Air off at 15:15, no groundwater at 15:35.
16:01				Grab		340			SM	Reddish brown (2.5YR5/3), well sorted, fine to medium SILTY SAND with minor CLAY and scattered fine to coarse, subrounded GRAVEL.	
	1.00			Grab		345			SW	Brown (10YR5/3), poorly sorted, very fine to coarse GRAVELLY SAND with fine to coarse GRAVEL.	Air off at 16:15, no groundwater at 16:35.
16:11											
16:40				Grab		350					

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Boring Log

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						350			SW	...same as above.	
	2.40			Grab		355					
16:45				Grab		360					
4/29 7:17											No groundwater at 7:00 on 4-29-01.
	1.00			Grab		365					
7:27				Grab		370			SM	Reddish brown (7.5YR4/3), moderately well sorted, fine to medium SILTY SAND with minor CLAY and trace amounts of GRAVEL.	
8:06											
	1.25			Grab		375			SW	Brown (10YR5/3), poorly sorted, fine to very coarse GRAVELLY SAND with fine to coarse, subrounded GRAVEL.	
8:14				Grab		380					
8:34									SP	Brown (10YR5/3), well sorted, fine to medium SAND with minor SILT.	
	1.67			Grab		385			SM/ ML	Brown (10YR5/3), well sorted, very fine to medium SILTY SAND to SANDY SILT with trace amounts of scattered CLAY.	
8:40				Grab		390	1st ▼				Air off at 7:27, no groundwater at 7:45. ...(380') - dry. ...(382') - moist. Air off at 8:40, no groundwater at 9:05.
9:34		N-11-1									
	0.77	OPEN BOREHOLE SAMPLE		Grab		395					
9:47				Grab		400					
10:30											Muddy cuttings on sounder probe, but no free water at 10:00.

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GeoLogic Associates
Boring Log

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CONTRACTOR: WDC EXPLORATION AND WELLS
LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 4/26/04
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ELEVATION: 1460.62
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TOTAL DEPTH: 621 feet

TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:30		OPEN BOREHOLE SAMPLE				400			SM/ML	...same as above.	
	1.50			Grab		405			SW	Brown (10YR5/3), moderately well sorted, fine to medium GRAVELLY SAND with abundant fine GRAVEL.	
10:40						410			SM	Yellowish brown (10YR5/4 to 5/6), poorly sorted, subangular to subrounded, fine to medium SILTY SAND with abundant SILT and minor coarse SAND.	...(412') - poor cuttings return. SWL(1)=389.85' bgs in open hole on 4-29-04.
14:50				Grab		415					...(413'-450') - very poor cuttings return.
	0.92					420				...(423') - finer-grained than above.	
15:15						425					
16:07				Grab		430					...(438') - no free water.
	0.92					435					
16:20				Grab		440			SW	Brown (10YR5/3), loose, poorly sorted, very fine to coarse GRAVELLY SAND.	
4/30 8:05						445					
						450	4th 3rd 5th 2nd				...(450') - no free water at 7:00 on 4-30-04.

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GeoLogic Associates
Boring Log

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TIME	RATE, FT/MIN	TEMPORARY WELL COFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
4/30 8:05						450	2nd ▼		SW	...same as above.	...(450') - no free water at 7:00 on 4-30-04.
	0.30			Grab		455					
8:38				Grab		460				...(459'-461') - more SILT than above.	
8:41											...(460') - easy drilling; damp cuttings; no free water.
	0.71			Grab		465				...(465'-469') - less GRAVEL than above.	
8:55				Grab		470					
10:20											...(470') - muddy cuttings, but unstable borehole.
	0.67										
10:26											
13:30				Grab		475					...(474') - unstable borehole, heaving sand.
	0.20	N-11-2								...(477') - more SILT than above.	
14:00				Grab		480					SWL(2)=451.86' bgs in temporary well at 7:00 on 5-2-04.
5/02 9:50											
				Grab		485					
	1.54					490				...(491'-493') - more GRAVEL and COBBLES than above.	
				Grab		495					
10:03				Grab		500			SM	Yellowish brown (10YR5/4), poorly sorted, subangular to subrounded, arkosic, fine to medium SILTY SAND with minor coarse SAND and thin, scattered GRAVELLY lenses.	...(500') - muddy cuttings, but little free water.
5/03 9:15									GW		

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TIME	RATE, FT/MIN	TEMPORARY WELL CONFIGURATION	BLOWS (COUNT/FT.)	SAMPLE SIZE, INCHES	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
5/03						500			SM	...same as above.	...(500') - muddy cuttings,
9:15									GW	Light yellowish brown (10YR6/4), weathered, poorly sorted, coarse SANDY GRAVEL with abundant rounded to subrounded, granitic and schistose GRAVEL with medium to coarse SAND and quartz and plagioclase clasts.	but little free water.
	1.43			Grab		505				...(506'-509') - SANDY lens, little to no GRAVEL.	
9:22				Grab							
16:22		N-11-3				510				...(510') - more GRAVEL than above.	...(510') - abundant free water. SWL(3)=449.01' bgs in temporary well at 14:45 on 5-3-04.
	1.00			Grab		515				...(513'-516') - finer-grained than above, little to no GRAVEL.	
16:32				Grab							
17:30						520				...(521'-524') - SILTY lens, little to no GRAVEL.	Unstable borehole.
				Grab		525			SW	Light yellowish brown (2.5Y6/3 to 5/3), poorly sorted, subrounded, fine to coarse, arkosic GRAVELLY SAND with rounded granitic and schistose GRAVEL.	...(527') - abundant free water.
	1.38			Grab		530					
				Grab		535					
17:43											
5/04 7:19	0.75			Grab		540			SM/ ML	Brown to yellowish brown (10YR5/3 to 5/4), poorly sorted, subrounded, fine to medium SILTY SAND to SANDY SILT with scattered, rounded GRAVELLY lenses and minor coarse SAND. Increasing SILT with depth.	...(541') - heaving sand; drive casing 10 feet.
7:23											
8:10				Grab		545					
	0.50										
				Grab		550				...(549'-551') - GRAVELLY lens.	
8:30										...(551') - more SILT and fine SAND than above, little to no GRAVEL.	...(551') - sand heaved 30'.
13:20											

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Boring Log

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8:30	NA					550			SM/ ML	...same as above.	
13:20	0.67			Grab		555				...(551') - more SILT and fine SAND than above, little to no GRAVEL.	...(551') - Sand heaved 30 feet.
13:35				Grab		560					
14:35	1.00			Grab		565				...(567'-569') - GRAVELLY lens.	...(561') - heaving sand.
14:45				Grab		570					
15:25	NA			Grab		575					...(571') - unstable, minor heave in borehole.
				Grab		580			GW	Light olive brown to olive brown (2.5Y5/3 to 4/3), weathered, friable, subrounded to rounded, poorly sorted, coarse SANDY GRAVEL with medium and coarse arkosic SAND and iron-oxide stained, rounded, schistose and granitic GRAVEL with quartz and plagioclase fragments.	...(579'-600') - abundant free water.
13:10	0.57	N-11-4		Grab		585					SWL(4)=449.18' bgs in temporary well at 11:00 on 5-5-04.
				Grab		590				...(591'-596') - SILTY lens, little to no coarse SAND or GRAVEL.	
				Grab		595					
13:45				Grab		600				...(601') - color change to light yellowish brown (10YR6/4 to 5/4).	Sand heaved over 20'.
14:58											

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13:45						600			GW	...same as above.	Sand heaved over 20'.
14:58										...(601') – color change to light yellowish brown (10YR6/4 to 5/4).	
				Grab		605			SW	Light olive brown (2.5Y5/4), weathered, poorly sorted, subrounded to rounded, fine to coarse GRAVELLY SAND with scattered SILTY lenses, and rounded schistose and granitic GRAVEL with quartz, quartzite, and plagioclase fragments.	...(605') – drive casing difficult to advance.
	0.38			Grab		610					
		N-11-5									
				Grab		615				...(614') – finer-grained than above, more SAND and SILT, less GRAVEL than above.	
15:50				Grab		620					SWL(5)=449.40' bgs in temporary well at 14:20 on 5-6-04.
						625				Notes: 1. Total depth of boring 621 feet. 2. Heave conditions encountered below 470'. 3. First groundwater measured at 389.85 feet below ground surface (bgs). 4. Second (unconfined) groundwater measured at 451.86' bgs and sampled in temporary well (475'-478'). 5. Third (confined) groundwater measured at 449.01' bgs and sampled in temporary well (501'-506'). 6. Fourth (confined) groundwater measured at 449.08' bgs and sampled in temporary well (578'-581'). 7. Fifth (confined) groundwater measured at 449.40' bgs and sampled in temporary well (618.5'-620.5'). 8. Borehole backfilled to 504.5' bgs using neat cement with 5% bentonite. 9. 2-inch piezometer installed in boring, screened from 403' to 413' bgs. 10. 4-inch monitoring well installed in boring, screened from 460' to 495' bgs.	
						630					
						635					
						640					
						645					
						650					

Well Construction	Chemical Analyses: Lab	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION
Aboveground well monument with locked lid, well stickup has locking cap Concrete backfill (0-6 feet bgs)		---	0		TW1-S			GM	Surface sample collected Light Gray-Brown Silty GRAVEL with fine to coarse Sand, cobbles and occasional boulders, some organic debris, dry
			5						
			10						Large Cobbles and Boulders
			15						
		---	20		TW1-20	41		GP-GM	Light Gray-Brown, Poorly-graded, fine to coarse, subangular to subrounded GRAVEL with fine to coarse Sand and Silt, some cobbles, dry, no odor, dense End drilling and sampling on 7/26/04, continued drilling and sampling on 7/27/04
11.75-inch diameter borehole (0-202 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal			25						
			30						
			35						(Very rocky-Driller's comment)
		---	40		TW1-40			GP-GM	Poorly-graded GRAVEL and Cobbles with Silt, same as above, increase in cobbles and occasional boulders, dry, no odor
			45						Decreasing Gravel and Cobbles

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE
1a

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1 GPJ KA RDLND.GDT 9/20/04

Well Construction	Chemical Analyses: Lab.	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*
11.75-inch diameter borehole (0-202 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal			50					SP	Brown, Poorly-graded, fine to medium subangular SAND with fine to coarse Gravel and Cobbles, some coarse sand, dry to slightly moist
			55						Large cobbles and boulders
		---	60	TW1-60		77		GP	Brown, Poorly-graded, fine to coarse subrounded to rounded GRAVEL with fine to coarse Sand, some cobbles, trace silt, moist, no odor, very dense
			65						
			70						
			75						
		---	80	TW1-80		47		GP	
			85						Poorly-graded SAND with Gravel (from soil cuttings)
			90					SP	
								GP	Increase in Gravel
			95						

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE 1b

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA RDLND.GDT 9/20/04

Well Construction	Chemical Analyses: Lab.	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*
11.75-inch diameter borehole (0-202 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal		—	100		TW1-100-100 Dup	57		GP	Dark Gray-Brown, Poorly-graded, fine to coarse subrounded to rounded GRAVEL and Cobbles with fine to coarse Sand, dark gneiss gravels, no odor, very dense
			105						Large cobbles and boulders, very slow drilling
			110						
			115						Very slow drilling, large cobbles
			120					GP	
			125						Decreasing gravels and cobbles
			130						
			135						
		—	140		TW1-140	60		SP	Gray-Brown, Poorly-graded, fine to coarse subangular micaceous SAND with fine to coarse Gravel, trace cobbles, moist, no odor, very dense
			145						

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE 1c

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA RDLND.GDT 9/20/04

Well Construction	Chemical Analyses: Lab.	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*
11.75-inch diameter borehole (0-202 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal			150						As above, fine to coarse sand, fine subangular gravels up to 1-inch diameter
			155						
			160					GP	Light Brown, Poorly-graded, Sandy GRAVEL
			165						
			170					SP	Light Brown, Poorly-graded, fine to coarse SAND with fine Gravel
			175						
		—	180		TW1-180	85		GP	Gray-Brown and Light Brown, Poorly-graded, fine to coarse subangular to rounded GRAVEL with fine to coarse micaceous Sand, trace silt, decomposed granite and gneiss gravels, slightly moist to moist, no odor, very dense
			185						
			190					SP	Poorly-graded Gravelly SAND
			195						

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

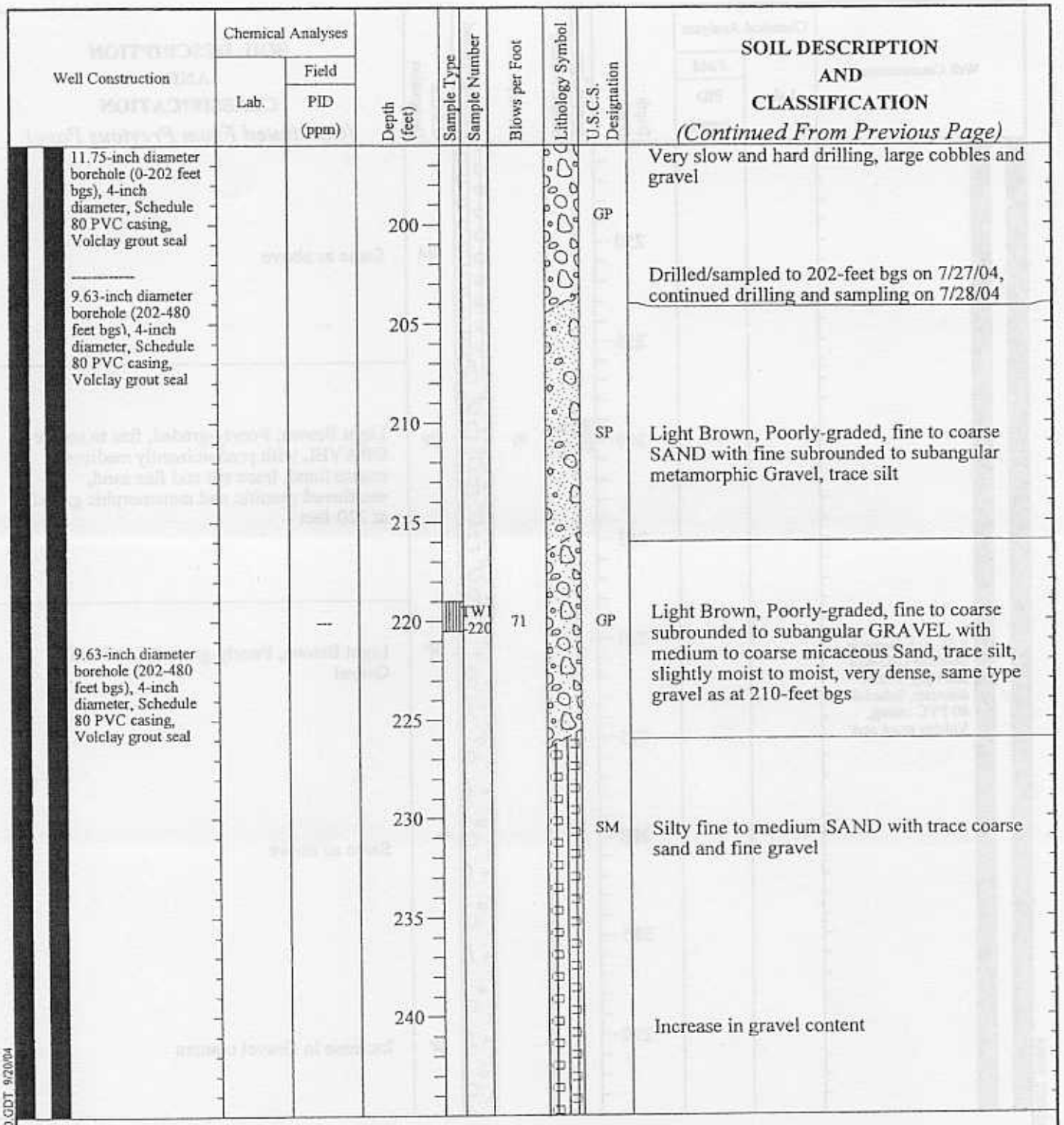
PLATE 1d

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA_RDLND.GDT 9/20/04



SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE
1e

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA RDLND.GDT 9/20/04

Well Construction	Chemical Analyses: Lab.	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*
			250					SM	Same as above
			255						
		---	260		TW1-260	71		GP	Light Brown, Poorly-graded, fine to coarse GRAVEL with predominantly medium to coarse Sand, trace silt and fine sand, weathered granitic and metamorphic gravel as at 220-feet
			265						
9.63-inch diameter borehole (202-480 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal			270					SP	Light Brown, Poorly-graded SAND with Gravel
			275						
			280						Same as above
			285						
			290					SP	Increase in Gravel content

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE
1f

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA 8DLND.GDT 9/20/04

Well Construction	Chemical Analyses: Lab.	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*
		—	295						
			300		TW1-300	67		GP	Light Brown, Poorly-graded, fine to coarse GRAVEL with fine to coarse Sand, trace silt, same gravel types as above, iron oxide staining on on some gravel End drilling and sampling to 299-feet bgs on 7/28/04, continued on 7/29/04
			305						
			310						
			315						
9.63-inch diameter borehole (202-480 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal			320					GP	Same as above
			325						
			330					SP-SM	Light Brown, Poorly-graded, fine to coarse subangular to subrounded SAND with fine rounded to subrounded metamorphic Gravel and Silt, moist
			335						
		—	340		TW1-340	110		SP-SM	Orange-Brown and Brown, Poorly-graded, fine to coarse subangular SAND with fine subrounded gneiss and schist Gravel and Silt, moist, no odor, very dense

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE
1g

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA_RDLND.GDT 9/20/04

Well Construction	Chemical Analyses: Lab.	Chemical Analyses: Field PID (ppm)	Depth (feet)	Sample Type	Sample Number	Blows per Foot	Lithology Symbol	U.S.C.S. Designation	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*
9.63-inch diameter borehole (202-480 feet bgs), 4-inch diameter, Schedule 80 PVC casing, Volclay grout seal			345 350 355 360 365 370 375 380 385 390	TW1-380-380 Dup		87		SP-SM SP SP SP-SM	Decreasing overall grain size and gravel content Grades into Light Brown to Red-Brown, fine to medium, Poorly-graded SAND with some coarse sand and little very fine gravel, moist Red-Brown, fine to medium, Poorly-graded SAND, as above, trace silt, some gravel, decomposed granitic sand, slightly moist, no odor, very dense Yellow-Brown, fine to medium, Poorly-graded SAND with fine Gravel and some Silt, trace coarse sand

SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

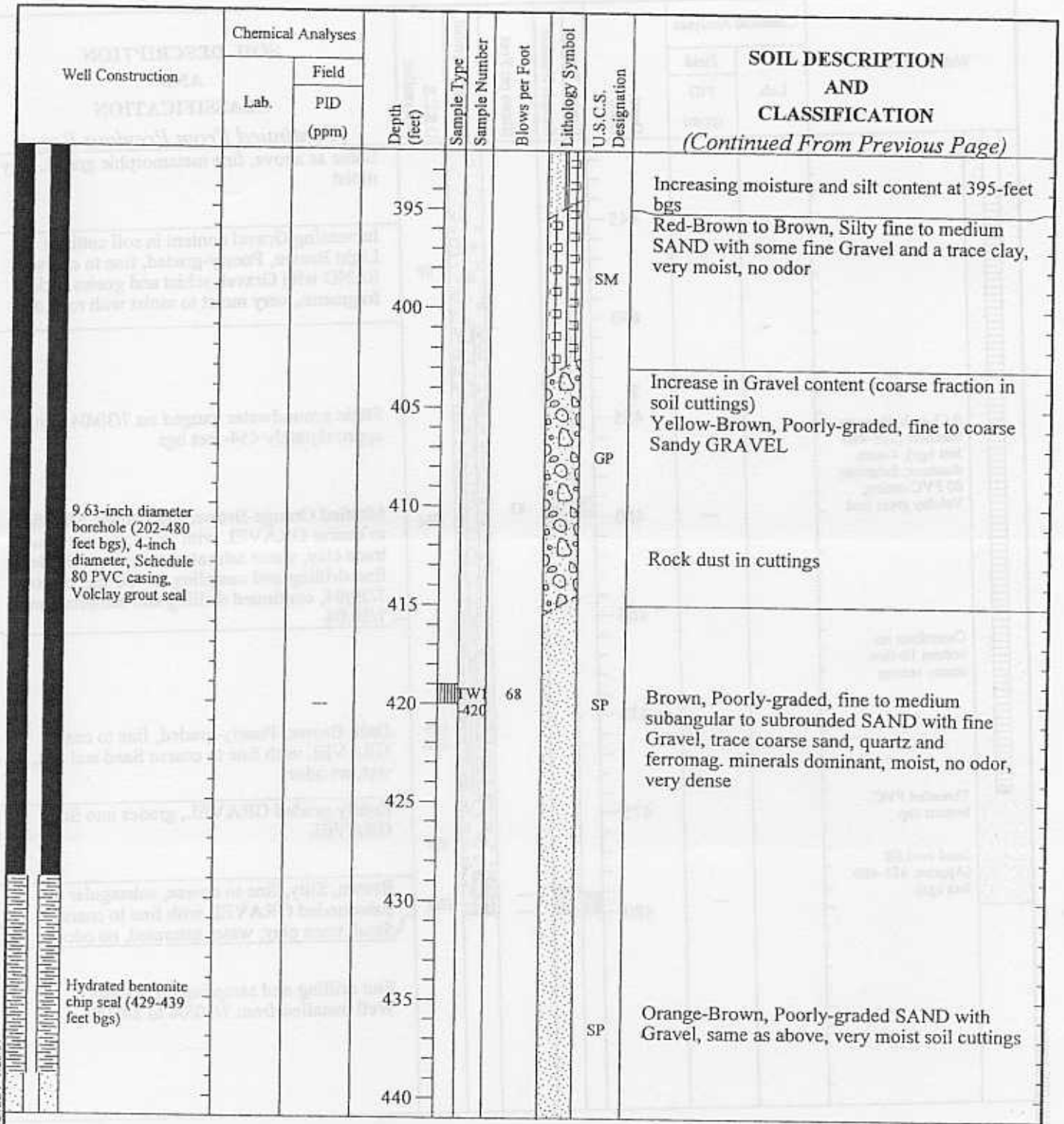
PLATE 1h

PROJECT NO. TW-1

LOG OF BORING TW-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

ENVIRONMENTAL DENOVA-1.GPJ KA RDLND.GDT 9/20/04



SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

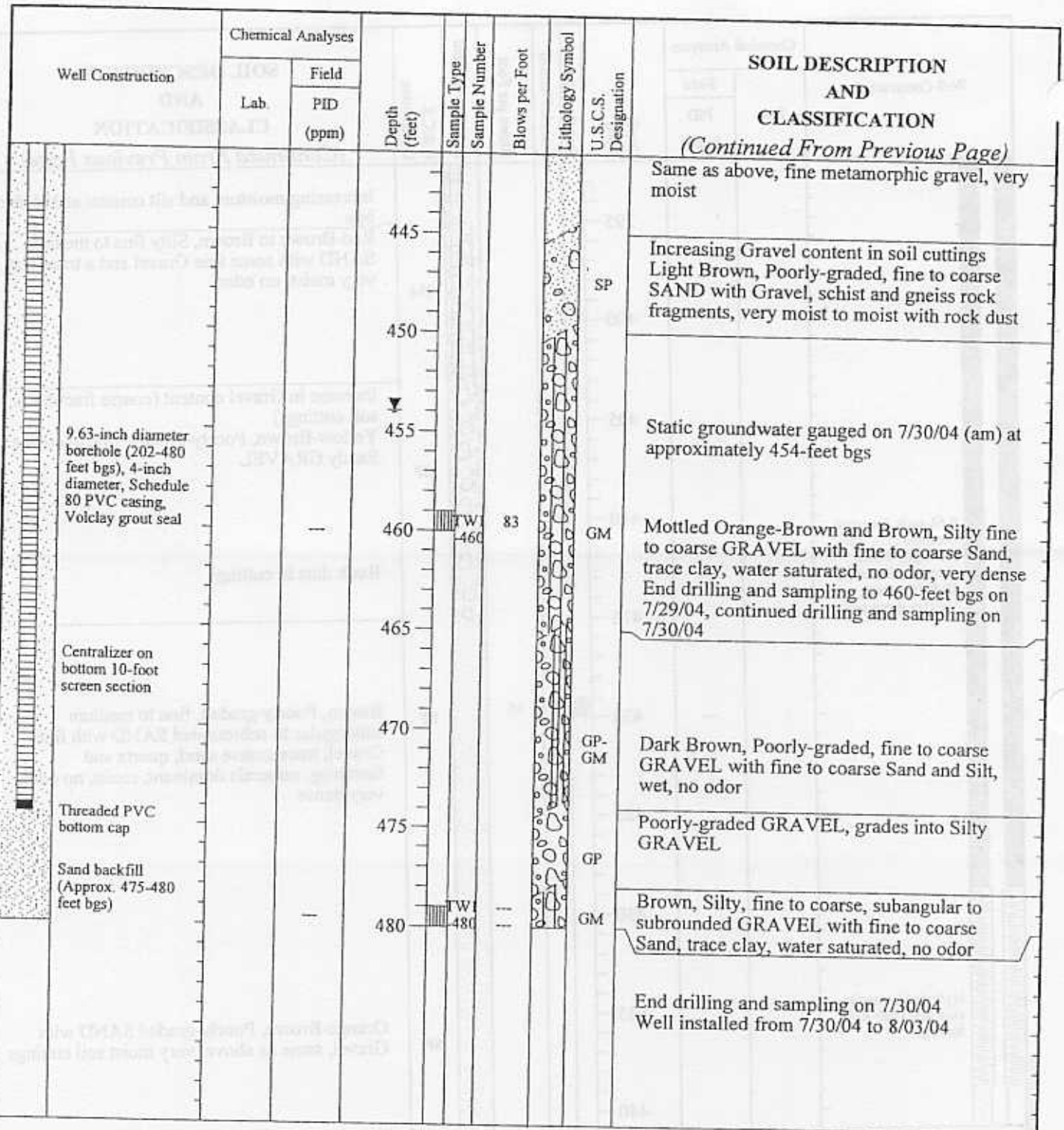
PLATE 1i

PROJECT NO. TW-1

LOG OF BORING TW-1

ENVIRONMENTAL DENOVA~1.GPJ KA RDLND.GDT 9/20/04

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.



SURFACE ELEVATION (feet): Approx. 1,640 MSL
TOTAL DEPTH (feet): 480.0
DATE DRILLED: 07/26/04 through 08/03/04

LOGGED BY: D. Ford/B.Bondy
DIAMETER OF BORING (inches): 11.75-9.63
DEPTH TO STATIC WATER (feet): 454 bgs

KLEINFELDER

Former Denova Site
2610 North Alder Avenue, Rialto, California 92337

PLATE 1j

PROJECT NO. TW-1

LOG OF BORING TW-1

ENVIRONMENTAL_DENOVA-LGPJ KA RDLND.GDT 9/20/04

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

CEDAR AVENUE
1N/5W-27D2-4

Depth, in feet	Thickness, in feet	Characteristics
0-30	30	Sand, very coarse to medium, gravel, cobbles, and boulders, moderate yellowish brown
30-55	25	Sand, coarse to very coarse, some medium sand, gravel, and cobbles, dark yellowish brown
55-75	20	Sand, very coarse to coarse, gravel, and cobbles, dusky yellowish brown
75-88	13	Sand, very coarse to coarse, cobbles, and boulders, light olive gray
88-98	10	Sand, coarse to very coarse, gravel, cobbles, and boulders, olive gray
98-110	12	Cobbles, gravel, and very coarse to medium sand, light olive gray
110-155	45	Sand, coarse to medium, some very coarse sand, gravel and cobbles, dark yellowish brown
155-213	20	Sand, coarse to very coarse, medium sand, gravel, and cobbles, dark yellowish brown
213-230	17	Sand, very fine to fine, and clay, some medium to very coarse sand, dark yellowish brown
230-243	13	Sand, medium to coarse, some fine sand, dark yellowish brown
243-252	9	Sand, coarse to fine, and clay (40%), dark yellowish brown
252-270	18	Sand, medium to coarse, some fine sand, gravel, and clay (trace at 258'-262'), dark yellowish brown

Depth, in feet	Thickness, in feet	Characteristics
270-283	33	Sand, coarse to medium, some fine sand, dark yellowish brown, and clay, moderate yellowish brown
283-307	24	Sand, coarse to medium, some fine sand, and gravel, dark yellowish brown
307-311	4	Sand, coarse to medium, some fine sand, and clay (trace), dark yellowish brown
311-337	26	Sand, coarse to medium, some fine sand, dark yellowish brown
337-380	13	Sand, medium to coarse, some fine sand, grayish orange, and clay (trace to 5%), moderate yellowish brown
350-360	10	Sand, coarse to medium, some fine sand, moderate yellowish brown
360-370	10	Sand, coarse to fine, and clay (trace to 5%), moderate yellowish brown
370-381	11	Sand, coarse to medium, some very coarse sand, dark yellowish brown
381-386	5	Sand, coarse to medium, some fine sand, and clay (trace), dark yellowish brown
386-410	24	Sand, coarse to medium, some fine sand, dark yellowish brown
410-448	38	Sand, medium to fine, some coarse sand, moderate to dark yellowish brown
448-458	10	Sand, coarse to medium, and clay (trace), dark yellowish brown
458-478	20	Sand, coarse to medium, dark yellowish brown

I. Cedar Avenue site 1N/5W-27D2-4

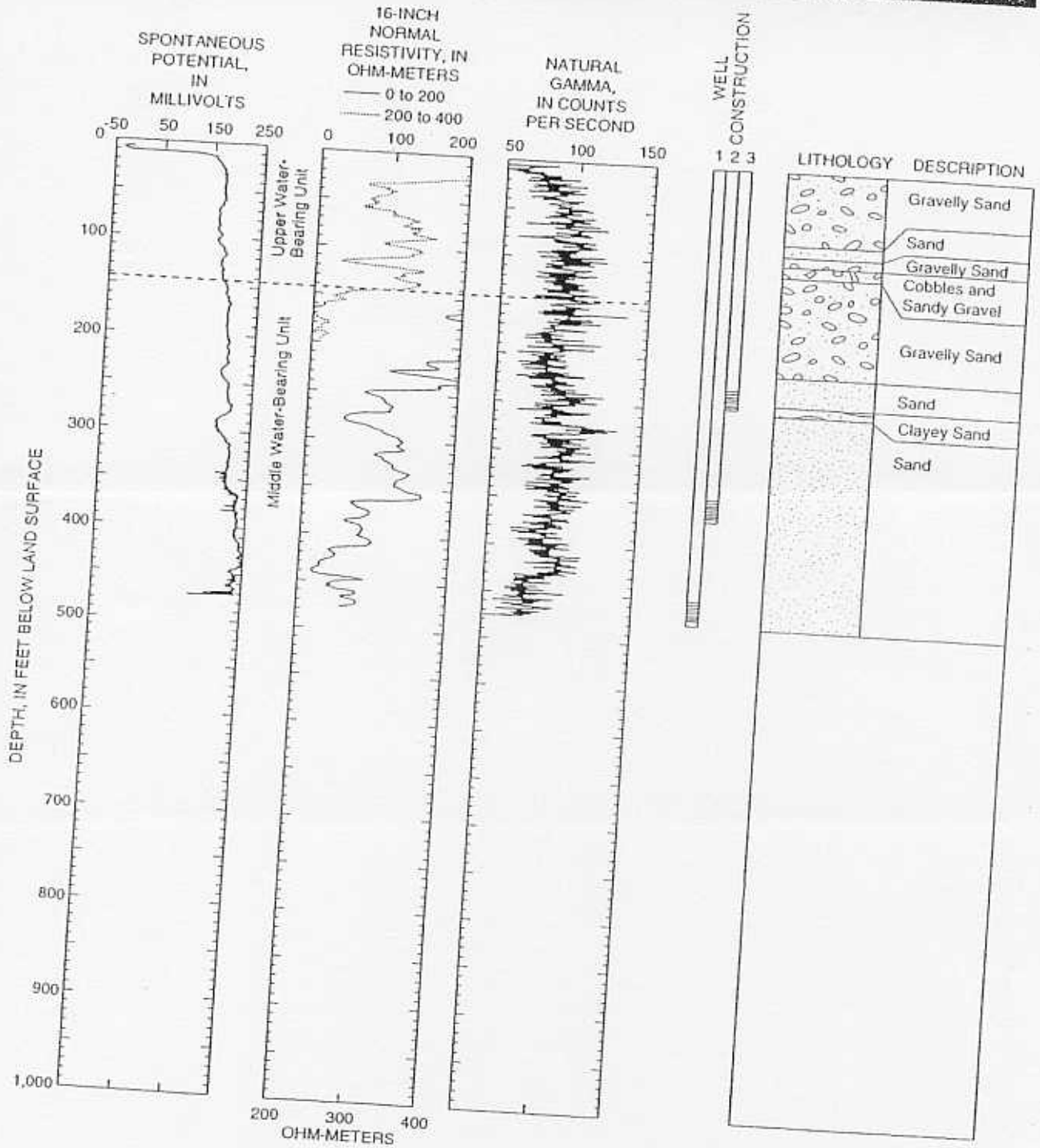


Figure 8—Continued.

VINEYARD AVENUE
1N/5W-28J2,3

Depth, in feet	Thickness, in feet	Characteristics
0-20	20	Sand, coarse, cobbles, very coarse sand, gravel, and medium sand, dark yellowish brown
20-39	19	Cobbles, gravel, very coarse to medium sand, dark yellowish brown
39-63	24	Gravel, cobbles, and very coarse to coarse sand, some medium sand, dark yellowish brown
63-97	34	Cobbles, very coarse to coarse sand, gravel, and medium sand, dusky yellowish brown
97-130	33	Sand, very coarse to coarse, medium sand, cobbles, and gravel, dusky yellowish brown
130-147	17	Sand, coarse to very coarse, medium sand, cobbles, and gravel, dusky yellowish brown
147-166	19	Sand, coarse to medium, some very coarse sand, gravel, cobbles, and clay (trace at 152'-156'), dark yellowish brown
166-182	16	Sand, very coarse to coarse, gravel, medium sand, and cobbles, dark yellowish brown
182-195	13	Sand, coarse to medium, and clay (25-40%), some very coarse sand and cobbles, dark yellowish brown
195-233	38	Sand, coarse to very coarse, some medium sand, gravel, and cobbles, dark yellowish brown
233-243	10	Sand, coarse to medium, some very coarse sand, and clay (trace to 5%), dark yellowish brown
243-264	21	Sand, coarse to medium, some very coarse sand, and gravel, dark yellowish brown
264-284	20	Sand, coarse to medium, some very coarse sand, and clay (trace to 5%), dark yellowish brown
284-309	25	Sand, coarse to fine, some very coarse sand, dark yellowish brown
309-322	13	Sand, coarse to fine, some coarse sand, dark yellowish brown, and clay (trace to 5%), dusky yellow
322-350	28	Sand, coarse to fine, some very coarse sand, dark yellowish brown
350-367	17	Sand, coarse to fine, dark yellowish brown, and clay (trace to 5%), light yellow brown
367-405	38	Sand, coarse to fine, some very coarse sand, dark yellowish brown
405-420	15	Sand, medium to coarse, some fine sand, dark yellowish brown
420-435	11	Sand, medium to fine, some coarse sand, and clay (trace), dark yellowish brown
435-445	10	Sand, medium to coarse, some fine sand, dark yellowish brown
445-453	8	Sand, medium to coarse, some fine sand, and clay (trace), dark yellowish brown
453-498	45	Sand, medium to coarse, some fine sand, pale yellowish brown

— PAGE 83 Follows —

K. Vineyard Avenue site 1N/5W-28J2, 3

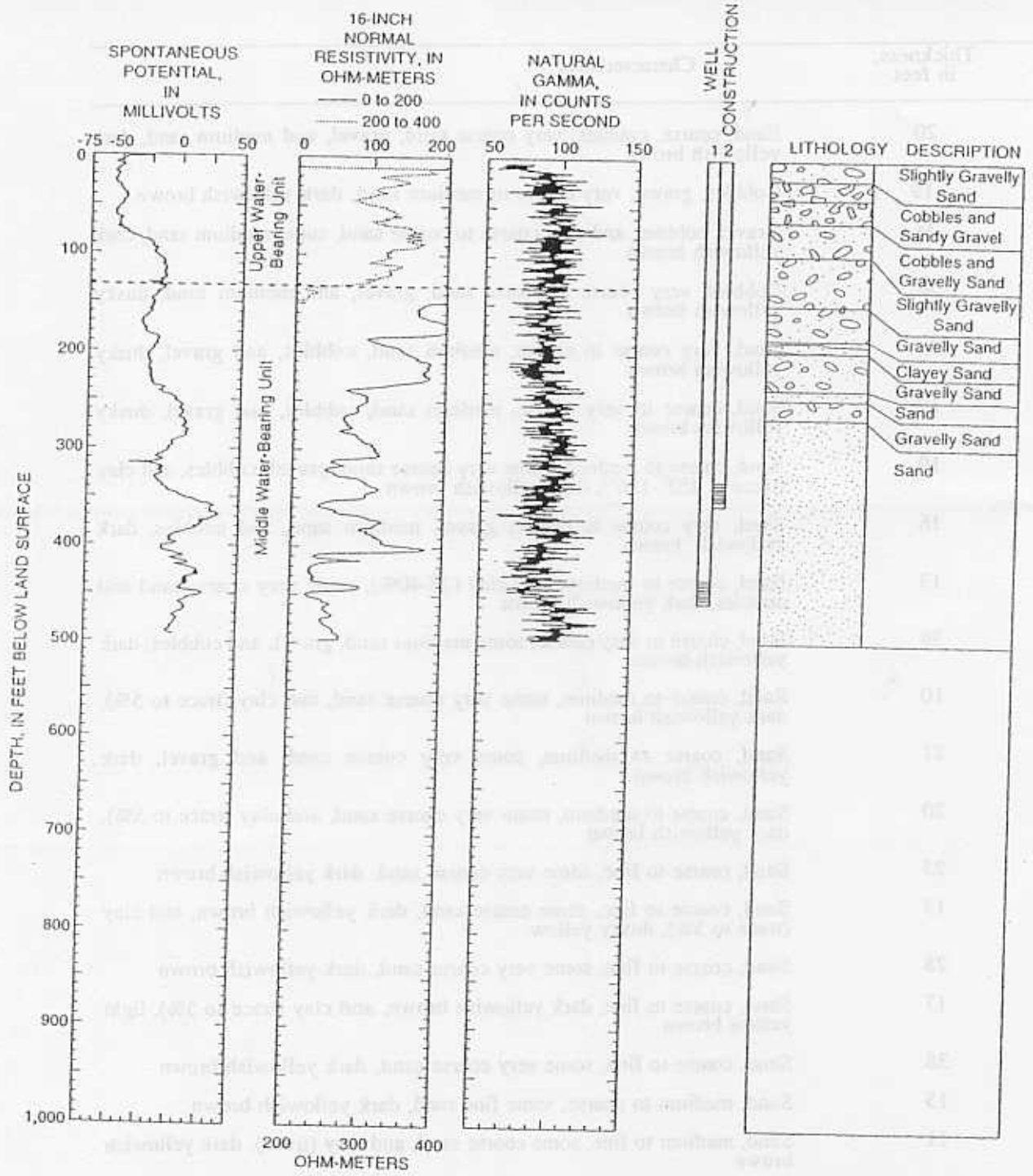


Figure 8—Continued.